Supreme Court, U.S.
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No. 99-

IN THE

Supreme Court of the United States

GEORGIA-PACIFIC CORPORATION,

Petitioner,

v.

UNITED STATES GYPSUM COMPANY
and L&W SUPPLY CORPORATION,

Respondents.

ON PETITION FOR A WRIT OF CERTIORARI TO THE
UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

PETITION FOR A WRIT OF CERTIORARI

JACK B. BLUMENFELD
MORRIS, NICHOLS,
ARSHT & TUNNELL
1201 North Market Street
Wilmington, Delaware 19801
(302) 658-9200

ALBERT E. FEY
Counsel of Record
W. EDWARD BAILEY
STEVEN C. CHERNY
FISH & NEAVE
1251 Avenue of the Americas
New York, New York 10020
(212) 596-9000

Attorneys for Petitioner

159621

Counsel Press LLC
(800) 274-3321 • (800) 359-6859

109pp

QUESTIONS PRESENTED

This petition presents questions of first impression before this Court. In this case, the Federal Circuit held that the affirmative defense of obviousness-type double patenting is a pure question of law having no subsidiary fact issues and that, therefore, the appropriate standard of appellate review of a jury's verdict of no double patenting does not require an analysis of whether the infringer met an evidentiary burden of proof. By changing the standard of appellate review from the "substantial evidence" standard to a standard where no deference is shown to the factual findings of the jury or the district court, the Federal Circuit made it possible to invalidate a duly-issued United States Patent without adducing any evidence at trial. This conflicts with 35 U.S.C. § 282 and the precedents of this Court. The Federal Circuit's decision raises the following questions never before addressed by this Court:

1. Whether, in a patent infringement case, 35 U.S.C. § 282 mandates that a defendant must establish by clear and convincing evidence that a patent claim is invalid under the judicially-created doctrine of obviousness-type double patenting.

2. Whether an appellate court is free to reverse a lower court, disregard the statutory presumption of validity and hold a patent invalid for obviousness-type double patenting without the infringer adducing clear and convincing evidence of invalidity.

3. Whether the United States Court of Appeals for the Federal Circuit applied the wrong standards of proof and appellate review when it ignored the "substantial evidence"

standard of appellate review and reversed a jury verdict and the District Court and held that "double patenting is a matter of what is claimed, and therefore is treated like claim construction upon appellate review".

STATEMENT PURSUANT TO RULE 29.6

Petitioner, Georgia-Pacific Corporation, has no parent company and no publicly held company owns 10% or more of its stock.

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The Petitioner, Georgia-Pacific Corporation, respectfully requests that a Writ of Certiorari issue to review the decision of the United States Court of Appeals for the Federal Circuit entered on November 1, 1999, affirming in part and reversing in part the decision of the United States District Court for the District of Delaware entering judgment for Petitioner.

OPINIONS AND ORDERS BELOW

The opinion of the Court of Appeals for the Federal Circuit is reported at 195 F.3d 1322 (Fed. Cir. 1999). That opinion is reprinted in the appendix hereto, App. A at 1a. The Order of the United States District Court for the District of Delaware denying Respondents' Motion for Judgment as a Matter of Law is unreported. It is reprinted in the appendix hereto, App. B at 28a.

BASIS OF SUPREME COURT JURISDICTION

The Federal Circuit's opinion was entered on November 1, 1999. The Federal Circuit granted Respondents' timely petition for rehearing and denied Respondents' suggestion for rehearing *en banc* on February 23, 2000. (App. C at 71a.)[1] The Federal Circuit denied Petitioner's timely petition for rehearing and suggestion for rehearing *en banc* on February 23, 2000. (App. D at 73a.) This Court has jurisdiction under 28 U.S.C. § 1254(1).

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1. The Federal Circuit granted Respondents' petition for rehearing for the limited purpose of deleting one line from its November 1, 1999 opinion.

STATUTORY PROVISIONS INVOLVED

35 U.S.C. § 282. **Presumption of validity; defenses**

> A patent shall be presumed valid. Each claim of a patent (whether in independent, dependent, or multiple dependent form) shall be presumed valid independently of the validity of other claims; dependent or multiple dependent claims shall be presumed valid even though dependent upon an invalid claim . . . The burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting such invalidity.

35 U.S.C. § 282 (Supp. 2000).

STATEMENT OF THE CASE

This petition presents questions never before addressed by this Court — the burden of proof that a patent infringement defendant must meet in order to invalidate a patent claim under the judicially created doctrine of obviousness-type double patenting, and the appropriate standard of appellate review for the Federal Circuit to apply in reviewing a jury verdict and District Court judgment that a defendant had failed to meet the burden of establishing double patenting.

In this case, the jury found and the District Court held that USG failed to meet its burden of proving by clear and convincing evidence that the claims of later-issued United States Patent No. 5,371,989 (the " '989 patent") were invalid for obviousness-type double patenting over earlier-issued

United States Patent Nos. 4,647,496 (the " '496 patent") and 4,810,569 (the " '569 patent"). The Federal Circuit reversed the District Court's decision. The Federal Circuit did so even though USG adduced: (1) no factual evidence at all regarding the alleged double-patenting of five of the eight claims at issue from the '989 patent; and (2) plainly insufficient evidence in support of its contention that the remaining three claims are invalid. The Federal Circuit also gave no deference to the decision of the United States Patent and Trademark Office ("PTO"), the verdict of the jury or the decision of the trial court — all of which held that the '989 patent claims were not double patented over the '496 and '569 patent claims. In so doing, the Federal Circuit announced a new standard of appellate review for obviousness-type double patenting. Specifically, the Federal Circuit stated that "double patenting is a matter of what is claimed, and therefore is treated like claim construction upon appellate review."

Double patenting is an affirmative defense that the Federal Circuit previously held must be proved by clear and convincing evidence using a fact-based inquiry analogous to the inquiry set forth by this Court in *Graham* v. *Deere*, 383 U.S. 1, 17 (1966). This is because patent claims are presumed valid under 35 U.S.C. § 282. Double-patenting is a question for the jury. Claim construction, in contrast, is not an affirmative defense or a challenge to a patent's validity and does not implicate 35 U.S.C. § 282. Neither party has a burden of establishing its proposed claim construction. Claim construction is not a question for the jury (*Markman* v. *Westview Instruments, Inc.*, 517 U.S. 370, 390 (1996)) and the Federal Circuit has held that claim construction is a pure question of law with no underlying fact issues. *Cybor Corp.*

v. *FAS Techs., Inc.*, 138 F.3d 1448, 1456 (Fed. Cir. 1998).[2] By equating appellate review of a jury verdict of no obviousness-type double patenting with review of a District Court's claim construction, the Federal Circuit removed its obligation to give deference to the jury's verdict and defendants' burden to adduce clear and convincing factual evidence of double patenting This violates the presumption of validity mandated by 35 U.S.C. § 282 and conflicts with the Federal Circuit's prior case law.

A. The District Court Proceedings

On February 9, 1996, after a two-week trial, the jury returned a verdict that USG's manufacture and sale of its Weatherock® glass mat-faced gypsum wallboard and Weatherock® exterior insulation and finish system infringed, induced others to infringe, and contributed to the infringement by others of Claims 1, 2, 5 and 11 of the '496

2. The Federal Circuit held in *Cybor* that this Court held in *Markman*, that claim construction is a pure question of law having no subsidiary fact issues. *Markman*, 517 U.S. at 390, however, held:

> We accordingly think there is sufficient reason to treat construction of terms of art like many other responsibilities that we cede to a judge in the normal course of trial, *notwithstanding its evidentiary underpinnings*.

(Emphasis added.) Although this Court's holding in *Markman* appears to be inconsistent with the Federal Circuit's holding in *Cybor*, there is no doubt that the Federal Circuit has decided that claim construction is a pure question of law without "evidentiary underpinnings" and, consistent with that, it applies a standard of appellate review of claim construction that does not require either party to meet an evidentiary burden.

patent, Claims 1 and 2 of U.S. Patent No. 5,319,900 (the " '900 patent") and Claims 1, 6, 8, 9, 10, 12, 15 and 17 of the '989 patent.

The jury also decided that USG failed to meet its burden of proving the asserted claims invalid. Specifically, the jury found that USG failed to meet its burden of proving by clear and convincing evidence that the claims of the '989 patent — which issued on December 13, 1994 — were invalid for obviousness-type double patenting over the claims of the '496 patent — which issued on March 3, 1987 — and the claims of the '569 patent which issued on March 7, 1989.[3]

On February 29, 1996, USG moved the District Court for judgment as a matter of law that, *inter alia*, the jury's verdict that USG failed to meet its burden of establishing obviousness-type double patenting was not supported by substantial evidence. On December 27, 1996, the District Court denied USG's motion on this point, finding it to be "without merit."

USG's only evidence at trial relating to obviousness-type double patenting came from its expert, Dr. Richard Kuntze. Dr. Kuntze only testified regarding Claims 1, 9 and 17 of the '989 patent. Dr. Kuntze never mentioned Claims 6, 8, 10, 12 or 15 of the '989 patent.

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3. The Verdict Sheet asked the jury, "[d]o you find that USG has shown by clear and convincing evidence that any of the following claims of the '989 patent are invalid due to obviousness-type double patenting?" The jury's answer to that question was "No" for each claim (A 00008-9).

Dr. Kuntze's testimony on double patenting consisted only of a conclusion. Dr. Kuntze testified (A 3902-3):

> Q. Dr. Kuntze, I'll ask the question again: After you held these patents up against one another, the earlier '496 and '569 patents, and the later '989 patent what conclusion did you come to?
>
> A. The conclusion I reached that we're talking about essentially the same thing. If there are subtle differences, I didn't see them and I didn't understand them.
>
> Q. Dr. Kuntze, do you have an opinion as to whether or not the claims of the seven — or the '989 patent asserted by Georgia-Pacific are obvious in light of the claims from its earlier patents?
>
> A. As I understand the term obvious — I'm not always sure I do — my answer is yes.

Dr. Kuntze was admittedly unclear as to his understanding of obviousness and he never offered any factual evidence in support of USG's double-patenting allegations.[4] Specifically, Dr. Kuntze never addressed the "factual inquiries" set forth by this Court in *Graham* necessary to establish obviousness,

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4. Of course, because Dr. Kuntze never even mentioned Claims 6, 8, 10, 12 or 15, he did not offer evidence of any type in support of USG's allegation that whether those claims were invalid for obviousness-type double patenting. USG's failure to offer any evidence regarding these claims is significant because, as 35 U.S.C. § 282 states, "[e]ach claim of a patent . . . shall be presumed valid independently of the validity of other claims."

and that the Federal Circuit has held are necessary to prove obviousness-type double patenting. These factual inquiries relate to: (1) "the scope and content of the prior art"; (2) the "differences between the prior art and the claims at issue"; (3) the level of ordinary skill in the pertinent art"; and (4) "[s]uch secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc." *Graham*, 383 U.S. at 17.

On cross examination Dr. Kuntze admitted that his testimony relating to the claims he actually testified about — claims 1, 9 and 17 — "had not much value." Dr. Kuntze testified (A3913):

> Q. And they never told you that consisting of in the patent law means something different from comprising?
>
> A. I've been advised that there's a difference, but for me it's a difference that I cannot understand.
>
> Q. Okay. And, therefore, your opinion, because of that lack of understanding has not much value; is that correct sir?
>
> A. Yes, if you say so.[5]

---

5. Dr. Kuntze's inability to understand the difference between the terms "consisting" and "comprising" was extremely probative of the lack of competence of USG's evidence. A main difference between the '989 patent claims and the '496 and '569 patent claims is that each of the '989 patent claims at issue uses the word "consisting" whereas the '496 and '569 patent claims each employ "comprising" language.

(Cont'd)

USG never offered any factual evidence relating to the pertinent double patenting inquiry. USG only adduced expert testimony regarding 3 of the 8 claims of the '989 patent, and its expert admitted that his double patenting opinion was not competent and had "not much value." It is not surprising that the jury and the District Court both concluded that USG failed to meet its burden of providing clear and convincing evidence of obviousness-type double patenting.

B. The Federal Circuit's Decision

On January 24, 1997, USG appealed from the District Court's Order denying its motion for judgment as a matter of law. On June 23, 1997, Georgia-Pacific responded to USG's appeal. In its response, Georgia-Pacific established that USG had adduced no competent evidence at trial in support of its double patenting defense and, therefore, that

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(Cont'd)

The terms "consisting" and "comprising" are terms of art in the patent law that have very different meanings and that substantively affect the scope of patent claims. *Laitram Corp.* v. *NEC Corp.*, 952 F.2d 1357, 1362 (Fed. Cir. 1991). A "consisting" claim is limited to the elements identified in the claim whereas a "comprising" claim is open ended and may include additional elements. "A 'consisting essentially of' claim occupies a middle ground between closed claims that are written in a 'consisting of' format and fully open claims that are drafted in a 'comprising' format." *PPG Indus.* v. *Guardian Indus. Corp.*, 156 F.3d 1351, 1354 (Fed. Cir. 1998).

The fact that the '989 patent claims use the term "consisting" indicates that they are significantly narrower in scope than the '496 and '569 patent claims — an important factor in determining whether they are obvious variants of the earlier-issued claims and a significant difference that the jury was entitled to credit.

the jury was entitled to conclude that USG had not met its burden of proving that the claims of the '989 patent were invalid for double patenting over the claims of the '496 and '569 patents.

On November 1, 1999, the Federal Circuit reversed the District Court's decision and held that the claims of the '989 patent are invalid for obviousness-type double patenting — including the five claims on which USG offered no evidence at all. The Federal Circuit stated (App. A at 5a-6a):

> Georgia-Pacific . . . asserts that there are patentable distinctions between the claims of these patents and that USG presented no competent evidence in support of its [double patenting] contention. . . .
>
> Double patenting is a question of law which we review *de novo*. *De novo* review is appropriate *because double patenting is a matter of what is claimed and therefore is treated like claim construction upon appellate review.*

(Emphasis added.)

The Federal Circuit did not dispute that USG failed to adduce competent evidence of double patenting. In fact, the Federal Circuit cited no evidence — not even the scant conclusory evidence provided by USG — in support of its conclusion that the eight asserted claims of the '989 patent are invalid for obviousness-type double patenting. The Federal Circuit did not mention, let alone apply, the factual analysis set forth in *Graham*. Instead, the Federal Circuit ignored the record and USG's complete failure of proof and,

sub silentio, made its own findings and concluded, without any evidentiary support, that the claims of the '989 patent were obvious variants of the claims of the '496 and '569 patents. The Federal Circuit did so notwithstanding the decision of the PTO that no double patenting had occurred and notwithstanding the explicit finding of the jury and the decision of the District Court. In doing so, the Federal Circuit changed double patenting from an affirmative defense that needs to be proved by clear and convincing evidence to overcome the presumption of validity to a pure question of law requiring no factual evidence.

REASONS FOR GRANTING THE WRIT

The Federal Circuit has now made it possible to invalidate patent claims without adducing any evidence and has reversed a jury verdict and lower court decision with complete disregard for the proceedings below. Prior to the Federal Circuit's decision, this was not possible. This is a substantial and undesirable change in the patent law, one that is inconsistent with 35 U.S.C. § 282, this Court's precedents and the Federal Circuit's previous precedents.

The Federal Circuit has undercut the presumption that duly-issued U.S. patents are valid by removing — in part — the requirement that infringers prove invalidity by clear and convincing evidence. In doing so, the Federal Circuit has seriously diminished the stability of patents that Congress created by enacting § 282. Patentees can no longer rely on Courts to give deference to the fact that the PTO has concluded, in issuing a patent, that the issued patent is not double patented. Likewise, patentees can no longer rely on the Federal Circuit to defer to juries that conclude that an infringer has not met its heavy burden of proving a patent

claim invalid for double patenting. That is because the Federal Circuit has removed that burden by changing the pertinent standard of appellate review from one where the Court determines whether a jury verdict of no double patenting is supported by substantial evidence to one where the Court reviews in a vacuum a purely legal question with no underlying factual questions. Under the Federal Circuit's new standard, no deference is paid to the PTO, the jury or the District Court. Given the potentially serious ramifications of the Federal Circuit's decision, this Court should review that decision.

A. The Presumption Of Validity

"Under 35 U.S.C. § 282, all patents are presumed valid." *Cardinal Chem. Co.* v. *Morton Int'l, Inc.*, 508 U.S. 83, 93 n.15 (1993). The basis for the presumption that patents are valid is the "proposition that a government agency such as the . . . Patent Office [is] . . . presumed to do its job." *American Hoist & Derrick Co.* v. *Sowa & Sons, Inc.*, 725 F.2d 1350, 1359 (Fed. Cir. 1984) (citing *Morgan* v. *Daniels*, 153 U.S. 120, 125 (1894)). Because patents are presumed valid, Courts require that an infringer proffer clear and convincing evidence to invalidate a duly issued patent. *American Hoist*, 725 F.2d at 1360. This high standard of proof for invalidating a patent is derived from this Court's opinion in *Radio Corp. of Am.* v. *Radio Eng'g Lab.*, 293 U.S. 1, 8 (1934). *Radio Corp.* states:

> Through all the verbal variances, however, there runs this common core of thought and truth, that one otherwise an infringer who assails the validity of a patent fair upon its face bears a heavy burden of persuasion, and fails unless his evidence has more than a dubious preponderance.

A jury verdict regarding the validity of a patent is reviewed under the "substantial evidence" standard. Substantial evidence " 'means such relevant evidence as a reasonable mind might accept as adequate to support a conclusion.' " *Universal Camera Corp.* v. *National Labor Relations Bd.*, 340 U.S. 474, 477 (1951) (citation omitted). However, due to the presumption of patent validity, a jury verdict that a patent is not invalid can be sustained based merely on the failure of the infringer to provide clear and convincing evidence of invalidity. *Orthokinetics, Inc.* v. *Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1570 (Fed. Cir. 1986). *Orthokinetics* states:

> Under the law set by Congress, a jury or a court may reach a conclusion that a patent remains valid solely on the failure of the patent challenger's evidence to convincingly establish the contrary. A patent being presumed valid at birth, § 282, a patentee need submit no evidence in support of a conclusion of validity by a court or jury.

B. The Double Patenting Doctrine

This Court never has addressed the judicially created doctrine of obviousness-type double patenting. Georgia-Pacific, therefore, reviews the evolution of that doctrine in the Federal Circuit.

The double patenting doctrine "precludes one person from obtaining more than one valid patent for either (a) the 'same invention,' or (b) an 'obvious' modification of the same invention." *In re Longi*, 759 F.2d 887, 892 (Fed. Cir. 1985). Double patenting issues can arise in two ways. The PTO may reject a pending application for double patenting

in view of an earlier-issued patent or the affirmative defense of double patenting may be raised as an invalidity defense in a patent infringement action.

The "same invention" type double patenting doctrine is based on the language of 35 U.S.C. § 101, which states that " 'Whoever invents or discovers any new and useful process . . . may obtain *a* patent therefore. . . .' " *Id.* The term "same invention" refers to multiple claims to inventions "drawn to identical subject matter." *Id.* Same invention type double patenting was not advanced as a defense in this action.

In contrast, "[o]bviousness-type double patenting is a judicially created doctrine intended to prevent improper timewise extension of the patent right by prohibiting the issuance of claims in a second patent which are not 'patentably distinct' from the claims of the first patent." *In re Braat*, 937 F.2d 589, 592 (Fed. Cir. 1991). This "doctrine has also been phrased as prohibiting claims in the second patent which define 'merely an obvious variation' of an invention claimed in the first patent." *Id.*

Prior to the Federal Circuit's decision in this action, "[d]ouble patenting . . . [was] an affirmative defense" to a claim of patent infringement. *Symbol Techs., Inc.* v. *Opticon, Inc.*, 935 F.2d 1569, 1580 (Fed. Cir. 1991). Due to the presumption of validity, an infringer had to establish double patenting "by clear and convincing evidence, a heavy and unshifting burden." *Id.* Likewise, under § 282, double patenting had to be proved on a claim by claim basis. *Ortho Pharm. Corp.* v. *Smith*, 959 F.2d 936 (Fed. Cir. 1992).

The obviousness-type double patenting inquiry is analogous to the obviousness inquiry under 35 U.S.C. § 103 set forth by this Court in *Graham*, 383 U.S. at 17. In *Longi*, 759 F.3d at 892 n.4, the Federal Court stated:

> [A] double patenting of the obviousness type rejection is "analogous to [a failure to meet] the non-obviousness requirement of 35 U.S.C. § 103," except that the patent principally underlying the double patenting rejection is not considered prior art.

See also In re Braat, 937 F.2d at 592-93. "[T]his Court has endorsed an obviousness determination similar to . . . that undertaken under 35 U.S.C. § 103 in determining the propriety of a rejection for double patenting."

Obviousness-type double patenting, like obviousness, is a question of law that subsumes a number of factual questions analogous to those put forth by the Court in *Graham*, 383 U.S. at 17. Prior to the Federal Circuit's decision in this action, a party that had not adduced evidence on the relevant *Graham* factors could not meet its burden of establishing invalidity for obviousness-type double patenting. In *Studiengesellschaft Kohle* v. *Northern Petrochem. Co.*, 784 F.2d 351, 355 (Fed. Cir. 1986), the Federal Circuit stated:

> We agree with SGK that Northern Petrochemical offered no evidence of the scope and content of the pertinent art, other than the '115 patent, the level of skill in the art, or what would have been obvious to a person or persons skilled in the art.

> *Consequently, we hold that obviousness-type double patenting is not involved in this case.*

(Emphasis added.) *See also Pac-Tec, Inc.* v. *Amerace Corp.*, 903 F.2d 796, 802 (Fed. Cir. 1990).

The PTO also employs the fact-based *Graham* inquiry in determining whether claims are invalid for obviousness-type double patenting. The Manual of Patent Examining Procedure § 804, at 800-17 to -18 (7th ed., rev. 2000), states:

> Since the analysis employed in an obvious-type double patenting determination parallels the guidelines for a 35 U.S.C. 103(a) rejection, the factual inquiries set forth in *Graham v. John Deere Co.*, 303 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103 are employed when making an obvious-type double patenting analysis. These *factual* inquiries are summarized as follows:
>
> (A) Determine the scope and content of a patent claim and the prior art relative to a claim in the application at issue;
>
> (B) Determine the differences between the scope and content of the patent claim and the prior art as determined in (A) and the claim in the application at issue;
>
> (C) Determine the level of ordinary skill in the pertinent art; and

> (D) Evaluate any objective indicia of nonobviousness.
>
> The conclusion of obvious-type double patenting is made in light of these *factual* determinations.

(Emphasis added.)

The lower courts also have followed the Federal Circuit's prior precedents applying the *Graham* factors to the obviousness-type double patenting inquiry. *Mirafi Inc.* v. *Murphy*, 14 USPQ2d 1337, 1347 (W.D.N.C. 1989), *aff'd in pertinent part without op.*, 928 F.2d 410 (Fed. Cir. 1991). *Mirafi* states:

> The issue of obviousness under the doctrine of double patenting is analogous to the obviousness — under 35 U.S.C. § 103. While § 103 is technically not involved here because the '038 patent is not prior art with respect to the '765 patent, it is nonetheless appropriate to utilize the § 103 analytical approach to determine obviousness under the double patenting doctrine. *See, e.g., In re Braithwaite*, 379 F.2d 594, 600 n.4 [154 USPQ 29, 34 n.4] (C.C.P.A. 1967); *In re Longi*, 759 F.2d at 892 n.4 [225 USPQ at 648 n.4]. Obviousness under § 103 is a question of law which is to be resolved by consideration of the following four underlying factual issues: (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; (3) the level of ordinary skill in the art; and (4) objective evidence of secondary considerations.

> In conducting the foregoing analysis the Court is mindful that the '765 patent enjoys a statutory presumption of validity. 35 U.S.C. § 282. The effect of this presumption is to shift the burden of proof on the invalidity question to the opponent of validity, who must come forward with clear and convincing evidence of invalidity.

Id. at 1347 (citations omitted).[6]

The party challenging the validity of a patent has the burden of adducing facts relevant to the *Graham* test. *TWM Mfg. Co.* v. *Dura Corp.*, 722 F.2d 1261, 1266 (6th Cir. 1983) ("As with all the elements of the *John Deere* test, Dura has the burden of proof on the issue of ordinary skill."). A failure to adduce such evidence is fatal to the infringer's invalidity assertions. *Water Techs. Corp.* v. *Calco., Ltd.*, 658 F. Supp.

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6. It is notable that the Federal Circuit, in an unpublished opinion, affirmed the District Court's holding in *Mirafi. Mirafi, Inc.* v. *Murphy*, 928 F.2d 410 (table), 18 USPQ2d 1087 (text) (Fed. Cir. 1991). In that opinion, the Federal Circuit reviewed the District Court's decision under the substantial evidence standard — not the new standard announced and applied in this case. The Federal Circuit stated:

> Mirafi appeals the trial court's conclusion that the '765 patent is invalid for double patenting (obvious modification). *Our standard of review for the underlying factual findings is clearly erroneous and for the ultimate conclusion of obviousness is error as a matter of law.* We hold that the trial court's findings are supported by substantial evidence in the record and that its conclusion is correct as a matter of law.

18 USPQ2d at 1087 (Emphasis added; citation omitted.)

961, 972 (N.D. Ill. 1986) ("The defendants have the burden of proving what is a person of ordinary skill in the art. . . . The defendants have not met their burden. Lack of evidence alone in this connection would be sufficient to hold that defendants have not met their burden of proof of obviousness of the patents in suit under the *Graham* v. *Deere* tests."), *aff'd in pertinent part*, 850 F.2d 660 (Fed. Cir. 1988).

C. In Reversing The District Court's Judgment That The '989 Patent Claims Are Not Invalid For Double Patenting The Federal Circuit Violated The Statutory Presumption Of Validity And Employed The Wrong Standard Of Appellate Review

USG presented no evidence at all in support of its contention that claims 6, 8, 10, 12 and 15 of the '989 patent are invalid under the doctrine of obviousness-type double patenting. USG provided no competent evidence in support of its allegations that claims 1, 9 and 17 of the '989 patent are invalid. It is undisputed that USG's expert never testified regarding any of the *Graham* factors in support of USG's double patenting defense and that USG adduced no evidence at trial regarding the level of skill in the pertinent art — a necessary and indispensable part of an obviousness-type double patenting defense. Given USG's absolute failure of proof, the jury and the District Court judge were entitled to find that USG did not meet its burden of proving double patenting by clear and convincing evidence.

It also is undisputed that the PTO was aware of the earlier-issued '496 and '569 patents when it issued the '989 patent claims. The PTO never rejected any of the '989 patent claims for double patenting. That decision of a qualified agency was, by law, entitled to deference.

Somehow, in the face of USG's absolute failure of proof of double patenting, the jury's verdict and District Court's holding of no double patenting, and the decision of the PTO to issue the '989 patent claims in light of the '496 and '569 patents, the Federal Circuit reversed the District Court and held that the claims of the '989 patent are double patented and therefore invalid. The Federal Circuit accomplished this by impermissibly changing the rules and, in doing so, it undercut the statutory presumption of patent validity.

In reversing the District Court's decision, the Federal Circuit did not mention Rule 50, Fed. R. Civ. P. — the rule governing appellate review of a District Court's decision on a motion for judgment as a matter of law — nor did it apply the substantial evidence standard to any of the jury's factual findings on obviousness-type double patenting. The Federal Circuit never mentioned or applied the *Graham* factors. In fact, the Federal Circuit discussed no factual evidence at all. The Federal Circuit never addressed USG's failure to meet its statutory burden of providing clear and convincing evidence of patent invalidity. Instead of reviewing the jury's verdict for evidentiary support and the District Court's jury instructions for legal correctness, the Federal Circuit reviewed the obviousness-type double patenting issue in a vacuum as a purely academic legal exercise.

This case has much in common with this Court's decision in *Dennison Mfg. Co.* v. *Panduit Corp.*, 475 U.S. 809, 810 (1986). In *Dennison*, this Court vacated the Federal Circuit's reversal of a District Court's finding of obviousness because the Federal Circuit failed to address the underlying factual *Graham* factors and failed to apply the right standard of review under Rule 52, Fed. R. Civ. P. In *Dennison*, 475 U.S. at 811, the Court stated:

> whether or not the ultimate question of obviousness is a question of fact subject to Rule 52(a), the subsidiary determinations of the District Court, at the least, ought to be subject to the Rule.

The same is true here. Although obviousness-type double patenting is a question of law, it is based on and requires the same subsidiary factual determinations identified in *Dennison*. The Federal Circuit ignored these factual determinations and the pertinent standard of review under Rule 50, Fed. R. Civ. P. If anything, the Federal Circuit's actions here are more problematic than in *Dennison*. In *Dennison*, the Federal Circuit reviewed and reversed a finding of invalidity and therefore, because it held the patent valid, its failure to conduct the appropriate review did not affect the statutory presumption of validity. Here, the Federal Circuit invalidated a presumptively valid patent. By ignoring USG's failure to adduce evidence in support of its double patenting defense, and reversing the District Court's judgment that USG failed to meet its burden, the Federal Circuit undercut the presumption of validity.

The Federal Circuit itself has recognized the need to apply the *Graham* factors to any obviousness analysis. In *Gechter* v. *Davidson*, 116 F.3d 1454, 1458 (Fed. Cir. 1997) the Federal Circuit stated:

> [I]n *Loctite Corp.* v. *Ultraseal Ltd.*, 781 F.2d 861, 228 USPQ 90 (Fed. Cir. 1985), we vacated the district court's invalidity decision under 35 U.S.C. § 103 (1994) for failure to set forth findings on the four factual inquiries delineated in *Graham* v. *John Deere Co.*, 383 U.S. 1, 17-18, 86 S. Ct. 684, 693-94, 15 L. Ed. 2d 545, 148 USPQ 459,

> 467 (1966). In assessing the adequacy of the lower court's findings to support its obviousness determination, we reasoned that "we must be convinced from the opinion that the district court actually applied *Graham* and must be presented with enough express and necessarily implied findings to know the basis of the trial court's opinion." *Loctite*, 781 F.2d at 873, 228 USPQ at 98.

In this case, the Federal Circuit set forth no findings on the four factual inquiries delineated in *Graham*. By not doing so the Federal Circuit failed to meet its own threshold test requiring that a court set forth sufficient factual findings in support of a conclusion of obviousness.

Instead of reviewing the factual record to see if a reasonable jury could conclude that USG failed to meet its "heavy burden" of proving double patenting, the Federal Circuit applied a new standard of review that completely removed that burden. Specifically, the Federal Circuit changed the standard of review that requires that an infringer adduce factual evidence to one that allows the Federal Circuit to decide, as a pure matter of law, that a patent claim is invalid for double patenting. That change occurred when the Federal Circuit held that "double patenting is a matter of what is claimed, and therefore is treated like claim construction upon appellate review."[7]

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7. The Federal Circuit based its holding that double patenting is treated like claim construction upon appellate review on its prior decision in *General Foods Corp.* v. *Studiengesellschaft Kohle*, 972 F.2d 1272, 1277 (Fed. Cir. 1992). *General Foods*, however, did not

(Cont'd)

The Federal Circuit has held, *en banc*, that claim construction is a pure question of law that involves no subsidiary or underlying questions of fact. *Cybor*, 138 F.3d at 1455. Claim construction is not an affirmative defense, nor is it a challenge to a patent's validity. Neither party has a burden regarding claim construction. That burden rests solely with the Court. *Markman*, 517 U.S. at 372. Claim construction does not implicate 35 U.S.C. § 282. Obviousness-type double patenting is (or was) an affirmative defense that must be proved "by clear and convincing evidence, a heavy and unshifting burden." *Symbol Techs.*, 935 F.2d at 1580. Double patenting is a challenge to the validity of a patent claim and does implicate § 282. The PTO makes determinations regarding double patenting that deserve deference. The same is not true of claim construction. No statutory presumption attaches to a claim's construction as it does to a claim's validity. The appropriate standard of appellate review for claim construction is not the same as that for the affirmative defense of double patenting.

(Cont'd)

hold that double patenting is treated like claim construction upon appellate review and, therefore, that a defendant need not adduce competent factual evidence in support of its double patenting defense. In fact, *General Foods* explicitly states that claim construction is only the *first step* in an obviousness-type double patenting analysis. *General Foods*, 972 F.2d at 1280 states:

> Double patenting law principles extend to merely obvious variants of what has been patented. *Step one* of the analysis is to determine what that is. Claims are the determinants.

(Emphasis added.) *General Foods* goes on to acknowledge that the remainder of the obviousness-type double patenting analysis is " 'analogous to the non-obviousness requirement of 35 U.S.C. § 103.' " *Id.* at 1282.

Although claim construction is a *component* of an obviousness-type double patenting defense, it is not coextensive with that defense. Once the claims at issue are interpreted, they must be compared, using the *Graham* factors, to determine whether the claims are obvious variants of each other. That comparison requires the infringer to adduce factual evidence. USG did not adduce that evidence and the Federal Circuit did not perform that factual analysis. For example, the question of obviousness-type double patenting requires evidence of the ordinary skill in the art. The question of whether one claim is obvious over another begs the question of obvious to whom? The fact that USG never adduced any evidence at trial regarding the level of ordinary skill means that it could not have met its burden. Likewise, USG's failure to offer evidence regarding the other *Graham* factors should have been fatal to its double patenting defense.

CONCLUSION

The Federal Circuit's decision has worked a substantial change in the law — one that is contrary to 35 U.S.C. § 282 and this Court's precedents regarding the presumption of validity. Because no other Court of Appeals will ever address this point this will never be the subject of a split between the Circuits. Only this Court can review this decision. Petitioner, therefore, respectfully requests that this Court grant its petition.

Respectfully submitted,

ALBERT E. FEY
Counsel of Record
W. EDWARD BAILEY
STEVEN C. CHERNY
FISH & NEAVE
1251 Avenue of the Americas
New York, New York 10020
(212) 596-9000

JACK B. BLUMENFELD
MORRIS, NICHOLS,
ARSHT & TUNNELL
1201 North Market Street
Wilmington, Delaware 19801
(302) 658-9200

Attorneys for Petitioner

APPENDIX

APPENDIX A — DECISION OF THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT DATED AND DECIDED NOVEMBER 1, 1999

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

97-1238, -1244

GEORGIA-PACIFIC CORPORATION,

Plaintiff/Cross-Appellant,

v.

UNITED STATES GYPSUM COMPANY and L&W SUPPLY CORPORATION,

Defendants-Appellants.

DECIDED: November 1, 1999

Before BRYSON, *Circuit Judge*, ARCHER,* *Senior Circuit Judge*, and GAJARSA, *Circuit Judge*.

PER CURIAM.

DECISION

United States Gypsum Company and L & W Supply Corporation (USG) appeal the judgment of the United States

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* Senior Circuit Judge Archer vacated the position of Chief Judge on December 24, 1997.

Appendix A

District Court for the District of Delaware holding that USG infringed claims 1, 2, and 5 of U.S. Patent No. 4,647,496 (the '496 patent) and claims 1, 6, 9, 10, 12, 15, and 17 of U.S. Patent No. 5,371,989 (the '989 patent), both patents being owned by Georgia-Pacific Corporation (Georgia-Pacific). In addition, USG appeals the district court's denial of its motion for judgment as a matter of law (JMOL) that all of the asserted claims are invalid due to obviousness in light of the prior art and that the asserted claims of the '989 patent are invalid for obviousness-type double patenting over the '496 patent and U.S. Patent No. 4,810,569 (the '569 patent).[1] USG also appeals the order of the district court granting a new trial rather than granting USG's post trial motion for JMOL with respect to infringement of claim 11 of the '496 patent, claim 8 of the '989 patent and claim 1 and 2 of U.S. Patent No. 5,319,900 (the '900 patent), also owned by Georgia-Pacific. Georgia-Pacific cross appeals the district court's failure to find USG's infringement of Georgia-Pacific's patents willful and its order granting a new trial to USG with respect to infringement of claim 11 of the '496 patent, claim 8 of the '989 patent, and claims 1 and 2 of the '900 patent. We affirm-in-part, reverse-in-part, vacate-in-part and remand.

BACKGROUND

The patents at issue relate to fiberglass[2] mat-reinforced gypsum boards and the use of such boards in exterior insulation systems (EISystems).

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1. The '569 patent is not at issue in this appeal.

2. The terms "fiberglass" and "glass" are used interchangeably herein.

Appendix A

Gypsum wallboard traditionally consists of a hardened gypsum core sandwiched between paper facing or similar reinforcing sheets. It is typically manufactured on a conveyor system. The gypsum is crushed and ground and mixed with water to form a core slurry. The core slurry is spread onto a first sheet of paper. A second sheet of paper is placed on top of the wet slurry. This combination is passed under a roller to achieve the desired thickness. After the core gypsum sets or hardens, the board is cut and then turned over and dried in a kiln.

Exterior gypsum wallboard, sometimes referred to as sheathing, is a component in an EISystem. The gypsum sheathing is attached to a frame of a house. Despite the use of water-resistant additives as well as water-repellent facings gypsum sheathing continued to be susceptible to degradation by water. If the paper faced gypsum board became wet, the paper facing would often peel away from the gypsum core.

The use of fiberglass mats instead of paper mats was known to solve peeling. The manufacture of a fiberglass gypsum board on the same production line used for the manufacture of traditional paper faced gypsum board remained a problem. Fiberglass matting, being more porous than paper matting, allowed the gypsum slurry to bleed through and foul the production line and, particularly, the rollers. Although the production line could be stopped to clean the gypsum buildup off the manufacturing rollers, some of the rollers, such as those in or near the kiln, were not easily accessible for such clean up.

Georgia-Pacific realized that the problem of the gypsum slurry bleeding through the fiberglass could be solved by

controlling the viscosity of the slurry. Georgia-Pacific patented this invention as well as the use of such a fiberglass faced gypsum board in an EISystem in the patents at issue.

The '496 patent contains claims directed to an EISystem installed using glass mat "faced" gypsum boards. The jury found that USG infringed claims 1, 2, 5, and 11 of the '496 patent. The jury's verdict was sustained by the district court, except for claim 11. The court held that Georgia-Pacific had not adduced substantial evidence to support an infringement verdict as to claim 11 and granted USG a new trial.

The jury found that USG infringed asserted claims 1 and 2 of the '900 patent. This patent is directed to a fiberglass mat-reinforced gypsum board which contains fire and water-resistant additives. The district court held that the evidence did not support infringement of these two claims and granted USG a new trial.

The final patent on appeal, the '989 patent, contains claims directed to both fiberglass mat-reinforced gypsum boards and EISystems using such boards. Each of the asserted claims 1, 6, 8, 9, 10, 12, 15 and 17 was found by the jury to be infringed by USG. In this case the district court sustained the infringement verdict as to all claims except claim 8. This claim required the use of certain fire-resistant additives. Like its holding as to claims 1 and 2 of the '900 patent the court found there was not substantial evidence to support infringement and granted USG a new trial.

The parties have dealt with the claims under five categories; namely, "sandwiched" claims, "faced" claims,

"system" claims, "additive" claims and "board" claims. The sandwiched claims, whether describing the board or the use of the board in an EISystem, contain the limitation that the gypsum core is "sandwiched" between two sheets of porous fiberglass mat. The faced claims all have the limitation that the gypsum board be "faced" with a fibrous mat, or that it be glass-mat "faced". The system claims relate to the use of fiberglass mat-reinforced gypsum boards as the substrate for layered systems used to finish the exterior portions of buildings. The additive claims contain the limitation that the claimed fiberglass mat-reinforced gypsum board contain additives which improve the fire- and/or water-resistant properties of the boards. Finally the board claims all claim a fiberglass mat-reinforced gypsum board (which in some cases contains fire- or water-resistant additives).

DISCUSSION

I. *Obviousness-Type Double Patenting*

USG contends that the '989 patent, which issued more that five years after the '569 patent, was invalid for obviousness-type double patenting over the claims of the '496 and '569 patents. Georgia-Pacific, however, asserts that there are patentable distinctions between the claims of these patents, and that USG presented no competent evidence in support of its contention. The district court did not dwell on this issue, and merely dismissed it (along with certain other contentions of USG in its motion for JMOL) by stating that it had "reviewed them and finds them to be without merit."

Double patenting is a question of law, which we review *de novo*. *See General Foods Corp. v. Studiengesellschaft*

Kohle, 972 F.2d 1272, 1277, 23 USPQ2d 1839, 1843 (Fed. Cir. 1992). *De novo* review is appropriate because double patenting is a matter of what is claimed, and therefore is treated like claim construction upon appellate review. *See id.* at 1277, 23 USPQ2d at 1843. Obviousness-type double patenting is a judicially created doctrine grounded in public policy, which prevents the extension of the term of the original patent via the patenting of an obvious variation. *See In re Longi*, 759 F.2d 887, 892, 225 USPQ 645, 648 (Fed. Cir. 1985). Under obviousness-type double patenting, a patent is invalid when it is merely an obvious variation of an invention disclosed and claimed in an earlier patent by the same inventor. *See General Foods*, 972 F.2d at 1278, 23 USPQ2d at 1843; *In re Vogel*, 422 F.2d 438, 442, 164 USPQ 619, 622 (CCPA 1970). Accordingly, analysis of the claims at issue is the first step in determining if the second invention is merely an obvious variation of the first.

In this case, the jury found that USG did not infringe claim 1 of the '569 patent, but held that claims 1, 6, 8, 9, 10, 12, 15, and 17 of the '989 patent had been infringed. USG contends that the claims of the '989 patent are invalid due to obviousness-type double patenting.

Claim 1 of the '569 patent reads as follows:

> Gypsum board comprising a set gypsum core sandwiched between two sheets of porous glass mat, each of which has an inner and outer surface, said mat comprising randomly distributed glass fibers bonded by an adhesive material, the inner surface of each of said mats adhered to said

> gypsum core by a portion of the set gypsum comprising said core, the outer surface of one of said mats having portions thereof coated with set gypsum comprising portions of the set gypsum of said core, and the outer surface of the other of said mats being substantially free of set gypsum.

Claim 1 of the '989 patent reads as follows:

> A gypsum board comprising a set gypsum-containing core sandwiched between two sheets of porous glass mat, each of said mats consisting of randomly distributed glass fibers bonded by an adhesive material, said mat adhered to set gypsum core by a portion of said set gypsum, at least a first of said mats having an outer surface which is substantially free of set gypsum.

These two claims are very similar. Indeed, the basic construction of the boards is identical, which is clear from this comparison of the language of the claims:

Patent '569, claim 1	Patent '989, claim 1
Gypsum board comprising a set gypsum core sandwiched between two sheets of porous glass mat	A gypsum board comprising a set gypsum-containing core sandwiched between two sheets of porous glass mat.

the inner surface of each of said mats adhered to said gypsum core by a portion of the set gypsum comprising said core	said mat adhered to set gypsum core by a portion of said set gypsum
the outer surface of the other of said mats being substantially free of set gypsum	at least a first of said mats having an outer surface which is substantially free of set gypsum.

Because these two claims are so similar, we must look to see if there is anything to distinguish claim 1 of the '989 patent from claim 1 of the '569 patent. There are two differences between these claims. The first difference arises from the outer surfaces of the boards described by the claims. Claim 1 of the '569 patent recites

> the outer surface of one of said mats having portions thereof coated with set gypsum of said core, and the outer surface of the other of said mats being substantially free of set gypsum.[3]

Claim 1 of the '989 patent requires a sandwiched gypsum board that has

> at least a first of said mats having an outer surface which is substantially free of set gypsum.

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3. Despite USG's assertion that claim 1 of the '569 patent "has a 'gypsum-free' limitation for *both* sides" USG is mistaken. Claim 1 of the '569 patent describes a board with gypsum slurry from the core covering the outer surface of one of the fiberglass mats, while the outer surface of the other mat is substantially free of set gypsum.

Appendix A

Claim 1 of the '989 patent does not require that one side of the board be "coated with set gypsum." The failure to claim the gypsum coating, however, does not distinguish claim 1 of the '989 patent from claim 1 of the '569 patent.

Claim 1 of the '569 patent recites a board made up of two glass fiber mats, a gypsum slurry sandwiched between them, with one outer surface of a glass fiber mat coated by gypsum slurry that seeped through the mat while the other outer surface is free of gypsum. Claim 1 of the '989 patent recites a board made up of two glass fiber mats, a gypsum slurry sandwiched between them, with at least one outer surface free of set gypsum. No claim is made as to the nature of the other side of the board in claim 1 of the '989 patent. The prior art shows that making a board with a gypsum coating on at least one side was well known. This minor linguistic difference does not serve to distinguish claim 1 of the '989 patent from claim 1 of the '569 patent in a nonobvious way, because the '989 claim language can be used to describe a set of boards that are described by the '569 patent or vary in an obvious manner based on the amount of gypsum on the outer surface of one of the glass mats.

Based on their language, claim 1 of the '989 patent is merely an obvious variation of claim 1 of the '569 patent with respect to the outer surfaces of the board, because the failure to claim anything with respect to the characteristics of one outer surface of the board does not distinguish these claims. The language of the claims bears out this obvious variation, as both claim that at least one outer surface of the board is substantially gypsum free.

Appendix A

Georgia-Pacific argues that claim 1 of the '989 patent is patentably distinct from claim 1 of the '569 patent. Claim 1 of the '569 patent reads as follows:

> said mat *comprising* randomly distributed glass fibers bonded by an adhesive material,

whereas claim 1 of the '989 patent reads as follows:

> each of said mats *consisting* of randomly distributed glass fibers bonded by an adhesive material.

Georgia Pacific argued at trial that the terms "comprise" and "consist" have different meanings; the appellee is correct in this contention. The Manual of Patent Examining Procedure explains the difference between "comprise" and "consist" in patent law as follows:

> The transitional term "comprising" . . . is inclusive or open-ended and does not exclude additional, unrecited elements or method steps.[4]
>
> The transitional phrase "consisting of" excludes any element step, or ingredient not specified in the claim.[5]

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4. For this definition, see *Moleculon Research Corp. v. CBS, Inc.*, 793 F.2d 1261, 229 USPQ 805 (Fed. Cir. 1986), and *In re Baxter*, 656 F.2d 679, 210 USPQ 795 (CCPA 1981).

5. For this definition, see *In re Gray*, 53 F.2d 520, 11 USPQ 255 (CCPA 1931), and *Ex parte Davis*, 80 USPQ 448, 450 (Bd. App. 1948).

Patent and Trademark Office, Department of Commerce, *Manual of Patent Examining Procedure*, § 2111.03 (6th ed. 1997). From these definitions it is clear that "comprise" is a broader term than "consist." The set of mats that are "comprised" of glass fibers includes the subset of mats that "consist" of glass fibers and also includes mats made up of glass fibers and other substances. Whereas, mats that "consist" of glass fibers are made up of glass fibers and nothing else. In this case, claim 1 of the earlier '569 patent uses the broader term "comprise," while claim 1 of the later '989 patent uses the narrower term "consist." Thus, any mat that meets the "consist" requirement of the '989 patent would also meet the "comprise" requirement of the '569 patent. In effect, the invention claimed in the '989 patent is, with respect to the glass mats, merely a subset of the invention claimed in the '569 patent.

After analyzing the language of the claims, it is clear that claim 1 of the '989 patent is merely an obvious variation of claim 1 of the '569 patent. While claim 1 of the '989 patent is slightly broader than claim 1 of the '569 patent with respect to the outer surfaces of the board, this difference is not enough to distinguish the two claims. With respect to the composition of the glass mats, the language and the disclosure of the '989 patent not only fail to distinguish it from the '569 patent, but indicate that it is merely a subset of the '569 patent. These differences are not sufficient to render the claims patentably distinct, and therefore, claim 1 of the '989 patent is invalid.

The dependent claims of the '989 patent — claims 6, 8, 9, 10, 12, and 15 — are likewise invalid, as none of them

adds any limitation that is sufficient to render it nonobvious in light of the claims of the '569 and '496 patents. Claims 6 and 8 recite the gypsum board of claim 1 with the gypsum core comprising a water-resistant additive (claim 6) or a fire-resistant additive (claim 8). The record reflects that the use of water-resistant and fire-resistant additives in the gypsum core of gypsum board was well known in the art, and the addition of those limitations does not render nonobvious the otherwise obvious gypsum board of claim 1. Claim 9 of the '989 patent largely tracks claims 4 and 6 of the '496 patent. The only difference between claims 4 and 6 of the '496 patent and claim 9 of the '989 patent is that claim 4 requires the outer surface of both glass mats to be substantially gypsum-free, claim 6 requires the outer surface of one of the glass mats to be gypsum-coated and the outer surface of the other to be gypsum-free, and claim 9 requires at least one of the mats to have an outer surface that is substantially gypsum free. Those differences in language do not render claim 9 of the '989 patent nonobvious over the prior patented claims. Claims 10 and 12 of the '989 add further limitations to the claim 9, but those limitations do not render claims 10 and 12 nonobvious in light of the claims of the '496 patent and the prior art. *See* claim 19 of the '496 patent (reciting an insulating material "substantially free of channels penetrating there through and between [the] inner and outer surfaces"); claim 5 of the '496 patent (reciting an exterior insulation system "including a reinforcing member sandwiched between said insulating material and said finishing material"); '989 patent, col. 7, lines 43-47 (use of a reinforcing member sandwiched between the insulating material and the finishing material is known in the art). Finally, claim 15 of the '989 patent does not add any

limitation that would render the invention of that claim nonobvious in light of claims 4 and 6 of the '496 patent, for the reasons set forth in the discussion of claim 9 of the '989 patent, above.

Furthermore, claim 17 of the '989 patent is similarly invalid.[6] Claim 1 of the '569 patent recites in part:

> two sheets of porous glass mat, each of which has an inner and outer surface, said mat comprising randomly distributed glass fibers bonded by an adhesive material . . . .

The corresponding recitation in claim 17 of the '989 patent reads:

> at least one porous, non-woven glass mat . . . said mat consisting of randomly distributed glass fibers bonded by an adhesive material . . . .

Except for the use of "comprising" in the '569 patent and "consisting of" in the '989 patent, the "said" clause in both is identical, and the clause "randomly distributed glass fibers" denotes a non-woven glass mat, so with regard to the structure of the mat, the two claims are identical. The use of the term "comprising" in the '569 patent and "consisting of" in the '989 patent renders the scope of the two claims

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6. Claim 1 is an independent claim upon which claims 6, 8, 9, 10, 12, and 15 of the '989 patent depend. Claim 17 is an independent claim and does not depend upon claim 1. USG does not contend the differences between claim 17 and claim 1 (and its dependent claims) affect the double patenting analysis.

different, but the difference is not sufficient to render claim 17 of the '989 patent nonobvious in light of claim 1 of the '569 patent, because it would have been obvious to construct the mat only out of glass fibers and adhesive, rather than out of glass fibers and adhesive and other unspecified substances.

There are no other differences between the two claims that suffice to render claim 17 nonobvious. It is true that claim 1 of the '569 patent requires two sheets of glass mat, while claim 17 of the '989 patent requires only "at least one" sheet of glass mat, but since a claim requiring two sheets anticipates a claim requiring at least one sheet, there is no difference flowing from that difference in the claim language that renders the claim patentably distinct. It is likewise true that claim 1 requires that one of the two glass mats must have "portions thereof coated with the set gypsum of said core," and also requires that the "outer surface of the other of said mats be[ ] substantially free of set gypsum." Claim 17, on the other hand, requires only that "an outer surface of said mat is substantially free of gypsum." Again, however, that difference in language does not reflect a difference in substance. Each limitation of a claim to a board that has at least one glass mat that is free of gypsum is met by a claim to a board that has two glass mats, one of which is at least partially coated with gypsum and the other of which is substantially free of gypsum. Thus, claim 17 of the '989 patent does not recite an invention that is nonobvious in light of the invention of claim 1 of the '569 patent, and it is invalid for obviousness-type double patenting.

Because we conclude that claims 1, 5, 8, 9, 10, 12, 15 and 17 of the '989 patent are invalid, we vacate the district court's judgment holding these claims infringed.

II. *Obviousness*

USG appeals the judgment below and seeks review of the jury's finding that the asserted claims of the patents at issue were not invalid and the district court's denial of its motion for JMOL. Patents are presumed valid by statute. *See* 35 U.S.C. § 282 (1994). The burden is on the party asserting invalidity to prove it with facts supported by clear and convincing evidence. *See Weatherchem Corp. v. J.L. Clark, Inc.*, 163 F.3d 1326, 1334-35, 49 USPQ2d 1001, 1007-8 (Fed. Cir. 1998). Obviousness is a legal determination which we review *de novo*, while we review underlying factual findings under a deferential standard. *See id.* In a jury case, we review a denial of JMOL to determine whether the jury's factual determinations are supported by substantial evidence and, if so, whether those findings support the legal conclusions drawn by the jury in reaching its verdict. *See Read Corp. v. Portec, Inc.*, 970 F.2d 816, 821, 23 USPQ2d 1426, 1431 (Fed. Cir. 1992); *Modine Mfg. Co. v. Allen Group, Inc.*, 917 F.2d 538, 541, 16 USPQ2d 1622, 1624 (Fed. Cir. 1990).

A. The "board" claims

USG argues that the board claims are invalid as a matter of law under 35 U.S.C. § 103 based on the combination of the Morrone reference (Canadian Patent No. 993779) and the Rigips reference (German Patent No. 7806114). Because we conclude that claims 1, 6, 8, 17 of the '989 patent are invalid for obviousness-type double patenting, we consider USG's contentions with respect to the remaining board claims claims 1 and 2 of the '900 patent.

USG's argues generally that the board claims are obvious in light of the prior art, including the Morrone and Rigips references. However, USG does not specifically address why these references would invalidate claims 1 and 2 of the '900 patent. Accordingly, we determine that the district court correctly upheld the jury's conclusion that USG failed to carry its burden to show facts supported by clear and convincing evidence that claims 1 and 2 of the '900 patent were invalid due to obviousness. The district court did not err in denying USG's motion for JMOL.

B. The "system" claims

With respect to the system claims, USG argues that these claims are simply the use of old boards in an old system. Claim 1 of the '496 patent is representative of the system claims:[7]

> An exterior insulation system for a building comprising a glass mat-faced gypsum support surface, insulating material having an inner surface and an outer surface, the inner surface of which is adhered to said support surface by an adhesive material, the insulating material being substantially free of channels penetrating there through and between said inner and outer surfaces, and an exterior finishing material overlying the outer surface of said insulating material.

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7. Claims 1, 2, and 5 of the '496 patent can be classified as "system" claims.

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USG contends that it was known that paper reinforced gypsum boards, because of the problems associated with exposure to water, constituted the "weak link" of EISystem and it, therefore, would have been obvious to use a fiberglass board.

None of the prior art references relied on by USG suggests using a glass mat-faced gypsum board as part of an exterior system. USG's own expert admitted on cross-examination that he knew of no prior art references that suggested the use of a fiberglass mat-faced gypsum board in an EISystem. Moreover, the boards claimed by Georgia Pacific in its EISystem were not "old boards," but instead were themselves patented products. The evidence also established that there was a long-felt need to find a substrate suitable in an EISystem to which insulation could be glued rather than nailed, as well as one that would overcome the problems of the paper delaminating.

Given the evidence presented, which demonstrated the need for a better exterior system, the lack of suggestion in the prior art to use a system with a glass mat-faced board to meet this need, and the success the patented system achieved, there was substantial evidence to support the jury's finding of non-obviousness of the system claims. The district court did not err in denying USG's motion for JMOL.

III. *Claim interpretation and infringement analysis*

Literal infringement involves a two step process: the proper construction of the asserted claim and a determination whether the claim as properly construed reads on the accused

product or method. *See Markman v. Westview Instr., Inc.*, 52 F.3d 968, 976, 34 USPQ2d 1321, 1326 (Fed. Cir. 1995) (in banc), *affd*, 517 U.S. 370 (1996). The first step, claim construction, is a question of law, which we review *de novo*. *See id.* at 979, 34 USPQ2d at 1329.

A. The "sandwiched" claims

Claim 11 of the '496 patent is representative of the "sandwiched" claims at issue in this case:

> An exterior finishing system for a building comprising an underlying structural support element . . . said support element including gypsum board comprising a set gypsum core *sandwiched* between two sheets of porous glass fiber mat, the gypsum core including one or more additives which are effective in improving the water-resistant properties of the board. . . .

(Emphasis added.)

The jury found that USG infringed Claim 11 of the '496 patent, which uses the term "sandwiched," but the district court granted USG a new trial on the issue of whether this claim was infringed. The district court held that Claim 11 does not claim a board where the gypsum core may penetrate through and onto the outside of the mat.

The district court found that the word "sandwiched" had not been given a special definition in the patents and that it did not have a special meaning in the gypsum board

manufacturing context. The court therefore gave the word its ordinary meaning — viz, to insert or place between — and instructed the jury that "sandwich means between two things and not through and outside one of the two things." After the jury returned a verdict of infringement in favor of Georgia-Pacific with respect to the claims of the '989 patent, the district court ruled on USG's JMOL motion that the construction of "sandwiched" did not constrain it from finding that the claims could cover a board with gypsum core between two porous glass mats with gypsum bleeding through the outer surface of one porous mat. The court ruled that because these claims specifically required only one side to be gypsum free, by implication the other side need not be gypsum free.

Georgia-Pacific argues that it is clear from the patent that it contemplates that gypsum might come through the glass mat on one side. There would be no reason to specify that one surface is to be gypsum-free if "sandwiched" means that the gypsum could not go through either surface. Georgia-Pacific contends that "sandwiched" cannot mean that the gypsum must stay between both of the glass mats.

We agree with Georgia-Pacific. There would be no need to specify a gypsum free surface if the sandwiched term meant that the gypsum could not go through one of the glass mats. Further, other dependent claims, such as claim 8 of the '496 patent, specifically claim one of the fiberglass mats has an outer surface with "portions thereof coated with set gypsum."

As we have discussed, the district court interpreted the "sandwiched" claim limitations in the patents as not precluding the gypsum core from flowing through one of the glass mats. In the case of Claim 11, however, the district

court interpreted "sandwiched" differently — i.e., that the gypsum core must remain between the mats.

Unless the patent otherwise provides, a claim term cannot be given a different meaning in the various claims of the same patent. *See Southwall Tech., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1579, 34 USPQ2d 1673, 1679 (Fed. Cir. 1995) (holding that claim term found in different claims must be interpreted consistently); see also *Fonar Corp. v. Johnson & Johnson*, 821 F.2d 627, 632, 3 USPQ2d 1109, 1113 (Fed. Cir. 1987) (holding that a term used in one claim had the same meaning in another claim). Interpretation of a disputed claim term requires reference to the other claims. *See Southwall*, 54 F.3d at 1579, 34 USPQ2d at 1679. We are convinced that the district court's interpretation of "sandwiched" as not precluding the flow through of the gypsum core on one of the fiberglass mats should have been applied to that term in claim 11 absent any indication that a different meaning was contemplated. The evidence demonstrates that USG infringed claim 11 of the '496 patent when it is so interpreted. We therefore reverse the district court's grant of a new trial and reinstate the jury's finding of infringement with respect to claim 11 of the '496 patent.

B. The "glass mat-faced" claims

USG argues that the district court misconstrued the meaning of the limitation "glass mat-faced" and that when properly construed the "faced" claims[8] could not be infringed by USG's fiberglass gypsum board.

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8. Claims 1, 2, and 5 of the '496 patent and claims 1 and 2 of the '900 patent can be classified as "faced" claims.

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Claim 1 of the '496 patent is representative of these claims:

> An exterior insulation system for a building comprising a *glass mat-faced* gypsum support surface, insulating material having an inner surface and an outer surface, the inner surface of which is adhered to said support surface by an adhesive material, the insulating material being substantially free of channels penetrating there through and between said inner and outer surface, and an exterior finishing material overlying the outer surface of said insulating material. (Emphasis added.)

USG asserts that "glass mat faced" means that the surface of the board facing out from the studs to which insulation is applied is an exposed, non-gypsum covered glass mat. The district court, however, adopted Georgia-Pacific's construction that the term "glass mat-faced" means "glass mat surfaee reinforcing material." Because USG's board is reinforced with fiberglass mats the court upheld the jury's finding that the "faced" claims were infringed.

USG argues that during prosecution of a different patent application in which claims were rejected in light of the Pilgrim patent, U.S. Patent No. 4,378,405, Georgia-Pacific surrendered any interpretation of the term "faced" that would include a completely embedded or coated fiberglass mat. The prosecution history statement relied on by USG was made by Georgia-Pacific nine months after the glass mat-faced claims of the '496 patent issued. There Georgia-Pacific stated:

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> [T]he Pilgrim patent does not disclose glass mat-faced gypsum board. To the contrary, this patent discloses a gypsum board in which the glass mat *is covered by a thin layer of gypsum* (emphasis original).

USG argues that Georgia-Pacific used the term "faced" to distinguish its board from prior art fiberglass mat-reinforced boards based upon the difference between leaving the fiberglass mat on the working surface exposed versus completely embedding it.

Georgia-Pacific argues that this post-issuance statement is extrinsic evidence and should be rejected because the intrinsic evidence alone resolves any ambiguity of this disputed claim term.

The specification of the patent in suit is the best guide to the meaning of a disputed term. *See Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582-83, 39 USPQ2d 1573, 1576-77 (Fed. Cir. 1996); *see also Bell & Howell Document Management Prod. Co. v. Altek Sys.*, 132 F.3d 701, 705, 45 USPQ2d 1033, 1037 (Fed. Cir. 1997) ("When construing a claim, a court should look first to the intrinsic evidence, i.e., the claims themselves, the written description portion of the specification, and the prosecution history.) Additionally, when intrinsic evidence is unambiguous, it is improper for the court to rely on extrinsic evidence to contradict the meaning of the claims. *See Pitney Bowes, Inc., v. Hewlett-Packard Co.*, 182 F.3d 1298, 1308-9, 51 USPQ2d 1161, 1167-68 (Fed. Cir. 1999).

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The '496 patent states at col. 9, lines 39-43:

> Although improvements in an EISystem can be realized by the use of a gypsum core which has but one of its surfaces faced with fibrous mat as described herein, it is preferred that both surfaces of the core be faced with substantially the same fibrous material . . . .

Because the '496 patent refers explicitly to both surfaces of the board being faced, "faced" cannot mean only the surface facing out from the studs as is necessary for USG to prevail. Furthermore, in the prosecution of the '496 patent Georgia-Pacific's patentee declared to the PTO: "One of the glass fiber mat-reinforced surfaces was substantially gypsum-free and the opposite surface was substantially gypsum covered." Thus, the glass mat-faced term was represented to mean both surfaces of the board one of which was described as covered with gypsum. For these reasons we are convinced that the district court properly construed the "faced" claims.

We also note that for Georgia-Pacific to be bound by the statement made to the PTO in connection with a later prosecution of a different patent, the statement would have to be one that the examiner relied upon in allowing the claims in the patent at issue. *See Mannesmann Demag Corp. v. Engineered Metal Prods. Co.*, 793 F.2d 1279, 1284-85, 230 USPQ 45, 48 (Fed. Cir. 1986) ("In cases where a patentees amendments were not required in response to an examiners rejection or critical to the allowance of the claims, no estoppel has been found.")

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C. The "additive" claims

Georgia-Pacific in its cross appeal argues that the court erred in granting USG a new trial on the additive claims[9] and that the jury's finding of infringement should be reinstated. USG on the other hand contends that its motion for JMOL should have been granted.

Claim 1 of the '900 patent is representative of the additive claims:

> Gypsum board comprising a set gypsum core faced with a fibrous mat, the gypsum core including one or more *additives* which are effective in simultaneously improving the water resistance and fire resistance properties of the board in an amount at least sufficient to impart to the board improved water resistance and fire resistance properties.

(Emphasis added.)

The district court held that even if it were to accept Georgia-Pacific's evidence revealing that it found the presence of glass fibers in the gypsum core of USG's board, the testimony did not demonstrate the presence of enough fibers to confer improved fire resistant properties. Thus, the court found that the jury could not reasonably conclude that USG's board contained fire resistant additives in an amount

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9. Claims 1 and 2 of the '900 patent can be classified as "additive" claims.

sufficient to meet this limitation so that claims 1 and 2 of the '900 patent, and claim 8 of the '989 patent would be infringed. The court then entered an order granting USG's motion for a new trial as to these claims.

Ultimately, the decision as to whether a new trial should be granted is within the discretion of the trial court. *See Registration Control Systems, Inc. v. Compusystems, Inc.*, 922 F.2d 805, 809, 17 USPQ2d 1212, 1215 (Fed. Cir. 1990) (citing *Allied Chemical Corp. v. Daiflon, Inc.*, 449 U.S. 33, 36 (1980)); *see also Wagner v. Fair Acres Geriatric Center*, 49 F.3d 1002, 1017 (3d Cir. 1995). Accordingly, we will overturn the district court's decision only if the court abused its discretion. *See Registration Control*, 922 F.2d at 809; *Wagner*, 49 F.3d at 1017.

Accepting Georgia-Pacific's evidence, which USG disputed, some fire resistant material in the form of glass fibers was found in the gypsum core of USG's boards. These fibers, however, were not shown to be sufficient in the court's view to demonstrate fire resistant properties. The court concluded for this reason that the jury's verdict was not adequately supported by the evidence but that the insufficiency of proof was not enough to grant USG's motion for JMOL. When a verdict is against the weight of the evidence a court may grant a new trial. *See, e.g., Moxness Products, Inc. v. Xomed, Inc.*, 891 F.2d 890, 893, 13 USPQ2d 1169, 1172 (Fed. Cir. 1989); *see also Wagner*, 49 F.3d at 1017. The district court therefore did not err in granting a new trial on the issue of infringement by USG in regard to claims 1 and 2 of the '900 patent. Because we conclude that claim 8 of the '989 patent is invalid due to obviousness-type

double patenting, we vacate the district court's grant of a new trial as to this claim.

IV. Willful Infringement

Georgia-Pacific contends in its cross appeal that the district court erred in failing to find that USG's infringement was willful. Willful infringement is a question of fact and must be established by clear and convincing evidence, for "the boundary between unintentional and culpable acts is not always bright." *Pall Corp. v. Micron Separations, Inc.*, 66 F.3d 1211, 1221, 36 USPQ2d 1225, 1232 (Fed. Cir. 1995); *American Med. Sys. v. Medical Eng'g Corp.*, 6 F.3d 1523, 1530-31, 28 USPQ2d 1321, 1325-26 (Fed. Cir. 1993). Because willfulness raises issues of reasonableness and prudence, and is often accompanied by questions of intent, belief, and credibility, appellate review requires appropriate deference to the special role of the trial court in making such determinations. *See Sensonics, Inc. v. Aerosonic Corp.*, 81 F.3d 1566, 1571, 38 USPQ2d 1551, 1555 (Fed. Cir. 1996); *S.C. Johnson & Son, Inc. v. Carter-Wallace, Inc.*, 781 F.2d 198, 201, 228 USPQ 367, 369 (Fed. Cir. 1986). Thus, a finding that infringement was not willful will be sustained unless the reviewing court has a definite and firm conviction that the trier of fact erred. *See Electro Med. Sys., S.A. v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 1057, 32 USPQ2d 1017, 1024 (Fed. Cir. 1994).

Georgia-Pacific asserts that the legal opinion which USG received was flawed and therefore USG was not entitled to rely on it. Georgia-Pacific's attack on the legal opinion is without merit. The court found that "while the opinion of

counsel might have been more complete and might have better predicted the issues that ultimately went to trial, it is the type of opinion on which U.S. Gypsum should have felt comfortable in relying on." Furthermore, the court found that USG relied upon that opinion and did not proceed with a wrongful intent or in a reckless disregard of Georgia-Pacific's rights. We conclude that the evidence supports the district court's holding that USG did not willfully infringe.

CONCLUSION

For the reasons stated, we affirm the judgment of the district court with respect to infringement of claims 1, 2 and 5 the '496 patent, reverse the court's grant of USG's motion for a new trial with respect to claim 11 of the '496 patent and reinstate the jury's finding of infringement of that claim. We vacate the court's judgment with respect to infringement of claims 1, 6, 9, 10, 12, 15 and 17 of the '989 patent, and vacate the court's grant of a new trial with respect to claim 8 of the '989 patent. We affirm the court's grant of a new trial with respect to claims 1 and 2 of the '900 patent. The case is remanded for further proceedings consistent with this opinion.

COSTS

No costs.

AFFIRMED-IN-PART, REVERSED-IN-PART, VACATED-IN-PART, AND REMANDED

APPENDIX B — MEMORANDUM OPINION AND ORDERS OF THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE DATED DECEMBER 27, 1996

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

Civil Action No. 94-489-RRM

GEORGIA-PACIFIC CORPORATION,

Plaintiff,

v.

UNITED STATES GYPSUM COMPANY and
L & W SUPPLY CORPORATION,

Defendants.

MEMORANDUM OPINION

* * *

McKELVIE, District Judge

This is a patent case. Plaintiff Georgia-Pacific Corporation owns U.S. Patent Nos. 4,647,496 (the " '496 patent"), 4,810,569 (the " '569 patent"), 5,319,900 (the " '900 patent"), and 5,371,989 (the " '989 patent"). The patents relate to the manufacture and use of fibrous mat-faced gypsum board.

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Georgia-Pacific alleges defendants United States Gypsum Company and L&W Supply (collectively hereinafter referred to as "U.S. Gypsum") are willfully infringing the '496, '569, '900 and '989 patents by manufacturing and selling a gypsum sheathing called Weatherock. U.S. Gypsum has denied infringement and counterclaimed for a judgment that these patents we invalid and unenforceable.

The case was tried to a jury beginning on January 29, 1996. On February 9, 1996, the jury returned with a verdict finding U.S. Gypsum infringed claims of the '569 and '900 patents and had infringed, induced others to infringe and had contributed to the infringement of claims of the '496 and '989 patents. A copy of the verdict is attached. The jury found U.S. Gypsum had failed to show there was no infringement of these claims under the reverse doctrine of equivalents. The jury also found U.S. Gypsum had failed to show by clear and convincing evidence that the asserted claims of the four patents are invalid due to obviousness or for lack of enablement, or that the claims of the '989 patent are invalid due to obviousness-type double patenting.

U.S. Gypsum has moved for an order granting it judgment as a matter of law, or in the alternative, for a new trial. The parties have completed briefing on the motions and the court heard oral argument on May 6, 1996. This is the court's decision on these motions.

Appendix B

I. *FACTUAL AND PROCEDURAL BACKGROUND*

A. *The Fields of the Invention and the Plaintiff's Patents*

1. *The Field of Invention: Gypsum Board and Exterior Insulating Systems*

Gypsum is a mineral. Plaster of Paris is a fine powder of ground gypsum. When water is added to Plaster of Paris, it makes a slurry. Gypsum board is a panel with a core of hardened gypsum slurry sandwiched between paper cover sheets. Gypsum sheathing is a gypsum board designed for exterior use. Its gypsum core contains additives which improve its water resistance.

Builders have used gypsum sheathing in construction as a part of in exterior insulation system in which the builder will place the insulation on the outside rather than on the inside of the building. In an exterior insulation system, the gypsum sheathing is attached as a support surface to the frame of the outside wall. The insulation is then attached to the sheathing. A mesh-like material is affixed to the insulation and an exterior finish, such as stucco or aluminum or wood siding, is attached to the mesh.

Traditionally, gypsum sheathing included a core of gypsum sandwiched between layers of water-repellant paper cover sheets. The sheathing was mechanically attached to the frame of the building with, for example, nails or screws. The insulation was then glued to the sheathing.

A number of problems were identified with this paper-covered sheathing. As the paper tended to absorb water, it

needed to be covered when stored at a job site and when it was being installed. Otherwise, the water might penetrate the paper and be absorbed into the core, which substantially reduced the strength of the sheathing. If the paper became wet after the sheathing was installed, the bond between the paper and the core might deteriorate, which could lead to cracking of the exterior finish.

Paper is also limited in its adhesive strength. As the insulation was typically glued to the paper on the sheathing, this tended to undermine the adhesive strengths of the various components of the system. While a builder might seek to overcome that problem by screwing or nailing insulation to the sheathing and the frame, that would both increase the installation costs and the risk that the fastener would provide a path for water to penetrate the insulation, the paper and the gypsum core.

2. *February 27, 1984: Georgia-Pacific's Patent Application*

On February 27, 1984, Georgia-Pacific, as assignee of Charles W. Lehnert and Brian Randall, filed an application with the United States Patent and Trademark Office for a patent on in invention relating to an improved gypsum board or sheathing. The application described a method of manufacturing a board on a conventional wallboard machine in which a gypsum slurry of a particular viscosity and including fire and water resistant additives was fed onto a moving sheet of glass fiber mat. The slurry penetrated substantially though some portions of the underlying mat to form a thin film on portions of the outer surface of the mat.

At that viscosity, the slurry did not penetrate through portions of the overlying mat.

The application reported that the fibrous mat-faced sheathing was an improvement over the paper-faced sheathing in that it had improved rigidity, strength and water resistance, and can be installed with water-based adhesives or secured by nailing. It set out 20 claims, including claims to an exterior insulating system comprising a fibrous mat-faced gypsum support system, a board with a gypsum core sandwiched between two sheets of porous glass mat, a process for manufacturing the board, the board with water-resistant additives, and the board with an outer surface substantially fee of gypsum.

By an action dated June 5, 1985, an examiner with the Patent and Trademark Office rejected all 20 of the claims as being unpatentable over U.S. Patent No. 4,504,533 to Altenhofer et al., which disclosed a gypsum construction panel comprising a gypsum core having fibrous mat facings.

In a reply dated December 6, 1985, John T. Synnestvedt, counsel for Georgia-Pacific, sought to distinguish Altenhofer as directed to improving adhesive bonding of a composite web on the side of a gypsum sheet and as nothing in Altenhofer suggested: 1) a method for installing a panel in an exterior insulating system; 2) a glass mat-faced gypsum board in which one face of the board has set gypsum and the other is substantially free of gypsum; 3) a method for regulating gypsum slurry viscosity; 4) a fibrous mat-faced gypsum board having water resistant additives; and 5) a shaft wall assembly.

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Following a March 1986 telephone conference with the Examiner, Alexis Barron of Synnestvedt & Lechner, filed an amendment adding a claim 21 directed to an exterior finishing system, declarations of the inventors describing the dramatic weatherability of the board and identifying and distinguishing certain prior art, including Canadian Patent No. 993,779 to Morrone, U.S. Patent Nos. 4,378,405 and 4,477,300 to Pilgrim, U.S. Patent No. 3,993,822 to Knauf, and U.S. Patent No. 3,944,698 to Dierks.

By an action dated April 18, 1996, the Examiner reported that he had found three distinct inventions described in the patent and required the applicant pursuant to 35 U.S.C. § 121 to restrict the application to one of the three. Barron initially objected to the Examiner's decision. Thereafter, he confirmed Georgia-Pacific had elected to proceed with the product claims. In August, Barron filed a supplemental amendment that, among other things, amended the board claims to claim an exterior insulating system that incorporated a glass mat-faced gypsum board. He added 26 claims, reviewed certain other prior art and renewed Georgia-Pacific's position that none of the prior art discloses the use of a glass mat-faced gypsum support surface as a structural support member in an exterior system.

By a notice dated September 5, 1986, the Examiner allowed the pending claims.

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3. *March 1987: The Systems Patent (the '496 patent) Issues and Georgia-Pacific Files a Divisional Application on the Board Claims*

Georgia-Pacific's patent on the systems claims issued on March 3, 1987 as No. 4,647,496, titled Use of Fibrous Mat-Faced Gypsum Board in Exterior Finishing Systems for Buildings. Georgia-Pacific contends U.S. Gypsum has infringed five claims of the '496 patent: claims 1, 2, 5, 6 and 11. Claims 1 and 11 are independent claims. They read:

> 1. An exterior insulation system for a building comprising a glass mat-faced gypsum support surface, insulating material having an inner surface and an outer surface, the inner surface of which is adhered to said support surface by an adhesive material, the insulating material being substantially free of channels penetrating therethrough and between said inner and outer surfaces, and an exterior finishing material overlying the outer surface of said insulating material.
>
> 11. An exterior finishing system for a building comprising an underlying structural support element which is covered with an overlying finishing material, said support element including gypsum board comprising a set gypsum core sandwiched between two sheets of porous glass fiber mat, the gypsum core including one or more additives which are effective in improving the water-resistant

properties of the board in an amount at least sufficient to impart to the board improved water-resistant properties.

On March 2, 1987, Georgia-Pacific filed a request for a divisional application for the board claims. By a decision dated June 19, 1987, the Examiner rejected the board claims as unpatentable over Altenhofer both Pilgrim patents and Morrone. The Examiner noted Altenhofer disclosed a gypsum board with a gypsum core layered with a glass fiber web, Pilgrim disclosed a gypsum board between two facing sheets of nonwoven glass fiber, and Morrone disclosed a process for making a gypsum board wherein a slurry is applied to a glass mat.

Barron responded by a paper dated December 22, 1987. He argued that Altenhofer is distinguishable as it claimed an outer surface that is a composite sheet of non-woven and woven fiberglass, it did not claim a board in which portions of one of the glass mats are coated with gypsum and it did not disclose the process for making the boards as described in Georgia-Pacific's application. He distinguished Pilgrim as claiming a board in which the glass mats are covered by a thin layer of core gypsum. He distinguished Morrone as also calling for a total coating of the glass fiber mat facing by the core gypsum. He noted that an advantage of the applicant's claimed invention is that it avoided a bleed through of gypsum during the manufacturing operation, avoided a build-up of slurry on the equipment, and thus allowed a manufacturer to change from paper board to fiber glass board without having to shut down and clean up the manufacturing line. He also noted that the gypsum-free surface of the

applicant's board was stronger than the board where the gypsum had bled through, and it offered a convenient surface to print product data.

On March 8, 1988, Barron supplemented his earlier reply to the Examiner by adding nine claims directed to a board and a process for making a board in which both surfaces of the glass mat are substantially free of set gypsum. In this paper, he acknowledged that the prior art disclosed a gypsum product of the type in which a set gypsum core is sandwiched between two glass mats, and argued that this art did not disclose a gypsum board in which the outer surface of each of the glass mats is substantially free of set gypsum. In that paper, he also distinguished Knauf in that the board described in Knauf has an underlying glass mat that is not substantially free of set gypsum, and that in Knauf's process for manufacturing the board, a barrier material was placed below the mat to prevent the slurry from penetrating through the mat. He wrote:

> In summary, it can be said that the prior art does not disclose that a glass mat-faced gypsum board can be produced by means of controlling the viscosity of a gypsum slurry in a manner such that the slurry penetrates but part-way into a porous glass mat, thereby affixing firmly one surface of the mat to the set gypsum core while the other surface remains gypsum-free.

In a second supplementary reply dated March 22, 1988, Barron added ten more claims directed to the nature and thickness of the mats and the slurry in various embodiments of the invention.

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4. *March 1987: The Board Patent (the '569 patent) Issues*

By an office action dated May 9, 1988, the Examiner allowed the pending claims subject to certain modifications. Patent No. 4,810,569, titled Fibrous Mat-Faced Gypsum Board was issued on March 7, 1989. Georgia-Pacific contends U.S. Gypsum has infringed claim 1 of that patent. It reads:

> 1. Gypsum board comprising a set gypsum core sandwiched between two sets of porous glass mat, each of which has an inner and outer surface, said mat comprising randomly distributed glass fibers bonded by an adhesive material, the inner surface of each of said mats adhered to said gypsum core by a portion of the set gypsum comprising said core, the outer surface of one of said mats having portions thereof coated with set gypsum comprising portions of the set gypsum of said core, and the outer surface of the other of said mats being substantially free of set gypsum.

In February 1992, Peter Cronk of Synnestvedt and Lechner filed a continued application based on Georgia-Pacific's original February 27, 1984 application. This application set out 26 claims directed to a gypsum board for use in in exterior finishing system The application included claims to a board with water-resistant additives and a method of manufacturing that board.

By an action dated April 27, 1993, the Examiner rejected all of the claims. One reason cited by the Examiner for

rejecting certain claims directed to the method of forming the board is that they were anticipated by German Utility Model No. 7,806,114, which had been assigned to Rigips Baustoffwerke GmbH & Co. The Examiner rejected other claims directed to the board, as obvious over Morrone in view of Novak, as the German patent disclosed a gypsum board comprising a core of set gypsum sandwiched between two sheets of porous glass fiber mats, with an outer surface permeated by the gypsum and Novak disclosed a board formed of a gypsum core between sheets of fiber with the outer surfaces uncalendered. The Examiner concluded it would have been obvious to one of ordinary skill in the art to leave the outer surface of the board of the German patent unpermeated by gypsum. The examiner also concluded it would have been obvious to one of ordinary skill in the art to comprise the core of the German patent of a fire-resistant additive to protect the structure to which the board is applied.

By a paper dated October 27, 1993, Cronk responded to the rejection with comments, canceled a claim, and amended certain other claims. Cronk argued that while Rigips disclosed a gypsum board including a set gypsum core bound by a pair of composite glass mat layers, it could be distinguished for a number of reasons, including that the composite layers were more expensive and complicated than the mats claimed in Georgia-Pacific's application, in that the mats included an inner fabric, a middle layer of chopped glass mat and an outer layer of glass mat with an increased density. He also argued that those of ordinary skill in the art would not have deciphered the applicants' viscosity control solution from the disclosure in the Rigips reference. Cronk argued that Morrone did not disclose the use of its board in

exterior insulation or finishing systems and did not show a mat substantially free of gypsum on the exterior surface.

By an office action dated February 14, 1994, the Examiner again rejected all of the claims under 35 U.S.C. § 112, for failure of the specification to point out particularly how the mats are adhered to the gypsum core, for failure to show how the gypsum flow is controlled, and as to certain claims as indefinite. The Examiner noted that the claims would be allowable if rewritten or amended to overcome the rejections.

> No prior art of record shows a gypsum board comprising a set gypsum core sandwiched between mats comprising randomly distributed glass fibers, with the set gypsum being adhered to the mats by a portion of the set gypsum and having an outer surface of the mats free of set gypsum.

Joseph Posillico of Synnestvedt & Lechner responded by a paper dated May 16, 1996, in which he reviewed where the specification described how the mats adhere to the core, and set out the viscosity flow-control parameter.

5. *December 1994: The Second Board Patent (the '989 patent) Issues*

On June 2, 1994, the Examiner confirmed the claims would be allowed. Patent No. 5,371,989, titled Use of Fibrous Mat-Faced Gypsum Board, issued December 13, 1994. Georgia-Pacific contends U.S. Gypsum has infringed claims

1, 6, 8, 9, 10, 12, 15 and 17 of that patent. The independent claims 1, 9 and 17 read as follows:

> 1. A gypsum board comprising a set gypsum-containing core sandwiched between two sheets of porous glass mat, each of said mats consisting of randomly distributed glass fibers bonded by an adhesive material, said mat adhered to said set gypsum core by a portion of said set gypsum, at least a first of said mats having an outer surface which is substantially free of set gypsum.
>
> 9. An exterior insulation system for a building, comprising a support surface, insulating material having an inner surface and an outer surface, the inner surface of which is adhered to the support surface by an adhesive material, and an exterior finishing material overlying the outer surface of the insulating material, said support surface comprising a gypsum board according to claim 1.
>
> 17. A gypsum board comprising a set gypsum core having at least one porous, non-woven glass mat thereon, said mat consisting of randomly distributed glass fibers bonded by an adhesive material, said mat adhered to said gypsum core by mechanical interlocking means formed from a portion of said randomly distributed glass fibers bonded to said set gypsum, whereby an outer surface

of said mat is substantially free of set gypsum.

On May 6, 1993, Peter Cronk of Synnestvedt and Lechner filed a continued application based on Georgia-Pacific's original February 27, 1984 application. This application set out 16 claims directed to a gypsum board for use in an exterior finishing and roof deck system. The application included claims to a finishing system with a fibrous mat-faced gypsum board with a core having one or more additives which improve the board's water and fire resistance. The application describes adding mineral fiber to the gypsum core to improve the ability of the set gypsum composition to maintain its integrity when subjected to the heat of fire, and describes mineral fibers, such as glass fibers, asbestos fibers and calcium sulfate whisker fibers, as examples of the materials.

In August 1993, the Examiner reported that the application contained claims directed to patentably distinct species, including exterior, interior and roof deck systems, and called on the applicant to elect a single disclosed species for prosecution on the merits. Cronk elected to pursue claims 1 and 4 through 7, which, were directed to an exterior finishing system; and claims 12 through 16, which were directed to a board with fire and water resistant additives. Consequently, Cronk withdrew claims 2, 3 and 8 through 11. The examiner then rejected the claims for obviousness-type double patenting over claims of the '496 and U.S. Patent No. 5,220,762 issued to Lehnert et al. and assigned to Georgia-Pacific, titled Fibrous Mat-Faced Gypsum Board in Exterior and Interior Finishing System for Buildings.

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By an amendment filed on October 10, 1993, Cronk canceled claims 1, 4 through 6, 7 and 11. In addition, Cronk requested that the Examiner reconsider the rejection of claims 12-16 in light of a disclaimer filed with the amendment by which Georgia-Pacific disclaimed the terminal part of any patent granted on the application which would extend beyond the expiration date of the '762 patent.

By a notice dated November 11, 1993, the Examiner allowed claims 12-16 of the application. Patent No. 5,319,900, titled Finishing and Roof Deck Systems Containing Fibrous Mat-Faced Gypsum Boards, was issued on June 14, 1994. Georgia-Pacific contends U.S. Gypsum has infringed claims 1 and 2 of that patent. They read as follows:

1. Gypsum board comprising a set gypsum core faced with a fibrous mat, the gypsum core including one or more additives which are effective in simultaneously improving the water resistance and fire resistance properties of the board in an amount at least sufficient to impart to the board improved water resistance and fire resistance properties.

2. The gypsum board of claim 1, wherein said fibrous mat contains glass fibers.

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B. *Pre-Trial and Trial Proceedings*

1. *Pretrial Proceedings*

Georgia-Pacific filed this action against United States Gypsum Company and L & W Supply Corporation on September 24, 1994, alleging they have willfully infringed claims of the '496, '569 and '900 patents and that they have actively induced and contributed to infringement by others. U.S. Gypsum responded on November 18, 1994, by denying infringement, and asserting a number of affirmative defenses, including a defense that the patents are invalid for a failure to meet the conditions in 35 U.S.C. § 102, that the inventions claimed are not new, for a failure to meet the conditions of 35 U.S.C. § 103, that the subject matter of the patent would not have been obvious at the time of the invention to a person having ordinary skill in the art to which it pertains, and for a failure to comply with the conditions of 35 U.S.C. §§ 111 and 112, that the claims of the patent particularly point out and distinctly claim the subject matter which the patentee regards as his invention or the preferred embodiment thereof. U.S. Gypsum also counterclaimed for a judgment that the three patents are invalid and unenforceable for the reasons identified in its answer.

Following a conference on December 9, 1994, the court entered a Scheduling Order providing that all discovery be initiated so that it would be completed on or before July 1, 1995 and scheduling the case for a ten-day jury trial beginning on September 25, 1995.

In January 1995, Georgia-Pacific moved for an order compelling U.S. Gypsum to provide more responsive

answers to interrogatories Georgia-Pacific had served on November 4, 1995, seeking, among other things, the factual basis for U.S. Gypsum's contentions that the patents in suit were invalid or unenforceable. During a January 6, 1995 conference on the motion, the court reviewed with counsel the opinions in *Scovill Mfg. Co. v. Sunbeam Corp.*, 61 F.R.D. 598 (D. Del. 1973) and *Wesley-Jessen Corp. v. Pilkington Visioncare, Inc.*, 844 F. Supp. 987 (D. Del. 1994) and the court's view that contention interrogatories can be an important tool to be used early on in discovery. In granting Georgia-Pacific's motion, the court noted:

> To the extent that you don't fairly disclose those matters in response to the contention interrogatories, then I will prevent you at trial from arguing or offering proof on those claims, or those arguments. . . . There will come at time at trial where each of you may stand up and say, Judge, we asked them back in November on this issue and they didn't produce the information. We haven't had a fair chance to take discovery on it and we ask you to preclude them from offering proof. And, consistent with these matters, I will preclude a party from offering facts or argument on points where they haven't fairly disclosed those matters in response to a contention interrogatory that seeks that information. . . . [T]he party who is seeking the information should be comfortable. If you can show me the other side has been unreasonable, I will prevent them from ambushing you later on.

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On January 10, 1995, the court entered an order implementing a stipulation filed by the parties by which Georgia-Pacific amended its complaint to add claims alleging defendants infringed the claims of the '989 patent. In answering the amended complaint, U.S. Gypsum no longer contended plaintiff's patents were invalid for failure to comply with the requirements in 35 U.S.C. § 111. Otherwise, it answered the amended complaint by again denying infringement, asserting the same affirmative defenses and counterclaiming for a judgment that all of the patents are invalid and unenforceable. U.S. Gypsum joined as a new affirmative defense and claim for relief allegations that Georgia-Pacific had sought to mislead the Patent and Trademark Office about the nature of the '405 patent issued to Pilgrim as to whether Pilgrim disclosed the inclusion of a water-resistant additive in the core of the board.

As the parties continued to report their disagreement on the adequacy and timing of responses to contention interrogatories, the court wrote to counsel on March 16, 1995 and reminded counsel of the court's view on the subject by sending counsel a transcript of a recent proceeding in another case where the court told counsel:

> [I]f you show me you're fairly responding with the information you've got when you've got it and you update and give the other side notice before the pretrial conference and before the trial, that's fine. But if it looks like you're holding back on something and the other side hasn't had a fair chance to respond in preparation for trial, I'll just preclude you from putting those facts or evidence

> in at trial. . . . And part of the reason I'm all over everybody in the early stages of the case is because there will come a time at the pretrial conference where I'll start cutting some heads and arms off. I've done it a couple of times and people have been a little upset, but part of my theory is we've talked about it for two months and if you haven't fairly disclosed it, it's too late at the pretrial conference to say, "By the way, Judge."

The court reviewed these issues with counsel again during a conference on March 23, 1995, during which the court discussed setting firm dates in March and April by which the parties would respond to contention interrogatories. Thereafter, any party seeking to supplement a response as to a contention or the basis for a contention would have to show why that party could not have provided that response sooner.

The court reviewed these issues with counsel again during in April 6, 1995 conference. During that conference the court set May 1, 1995 as a date by which U.S. Gypsum's position on the bases for its defenses would be fixed.

Following the April 6, 1995 conference, the court entered an Amended Scheduling Order extending the date for the completion of discovery to October 13, 1995 and rescheduling the trial to January 1996.

On September 6, 1995, Georgia-Pacific moved for an order precluding U.S. Gypsum from relying on certain prior art or asserting certain defenses, reporting that on September 1,

U.S. Gypsum had served a Fourth Amended Reply to Georgia-Pacific's contention interrogatories and in those answers identified 57 prior art references not previously asserted, and new bases for defenses based on invalidity, including the Morrone '779 patent, a Pearson '371 patent, and a contention U.S. Gypsum invented a board similar to Weatherock in the late 1970's. During a conference on September 13, 1995, the court granted Georgia-Pacific's request for relief, subject to a further showing by U.S. Gypsum as to why it had failed to provide the information in these answers earlier. With regard to newly disclosed facts or art, the court invited U.S. Gypsum to show it had only recently learned of these facts or the art. With regard to new contentions based on previously disclosed facts, the court invited U.S. Gypsum to show that Georgia-Pacific would not be unfairly prejudiced by having to respond to them at the trial.

U.S. Gypsum followed up on that invitation with further argument on why it should not be precluded from obtaining relief based on matters, facts or contentions identified for the first time in its Fourth Amended Reply. After reviewing the matter and having found U.S. Gypsum failed to show why it could not have set out the factual and legal bases for these contentions earlier, the court entered an order precluding U.S. Gypsum from relying at trial on the new matter disclosed in the September 1st Fourth Amended Reply.

2. *The Trial*

The case was tried to a jury beginning on Monday, January 29, 1996. At the trial, Georgia-Pacific offered

evidence on Brian Randall and William Lehnert's work in the early 1980's that led to the development of the inventions that are the subject of the patents, including a glass-mat-surfaced gypsum board and Georgia-Pacific's introduction and marketing of products based on their invention, including a glass-mat faced gypsum board called Dens Glass and later a board called Dens Glass Gold, by which Georgia-Pacific added a gold-colored acrylic coat on the outer surface of the Dens Glass. Georgia-Pacific manufactures its Dens Glass Gold on a traditional gypsum board manufacturing line, by pouring a gypsum slurry onto that mat. It increases the viscosity of the slurry to prevent it from flowing or bleeding through the mat. It then places a mat on top of the slurry. As some slurry may seep through the bottom mat, portions of the outer surface of the bottom mat may be covered by gypsum. However, the outer surface of the top mat is gypsum-free.

Georgia-Pacific offered evidence showing that Georgia-Pacific was losing sales on Dens Glass products with customers buying U.S. Gypsum's competing product, Weatherock, which U.S. Gypsum began selling in the 1990s. U.S. Gypsum manufactures its Weatherock board by placing a fiber glass-mat on release paper, pouring a densified gypsum slurry on the mat, forcing the slurry into and through the mat, adding a foamed gypsum slurry as a core, and placing a fiber glass-mat on top of the core slurry. It then removes the paper, to have a board with 95% of the bottom surface (where the paper had been) covered with gypsum, and with the outer surface of the top mat substantially free of gypsum. U.S. Gypsum admits it adds a water resistant additive to its slurry, but denies it adds a fire resistant additive.

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Brian Randall testified he had taken a sample of Weatherock and soaked it in water. As the core gypsum dissolved, he found glass fiber filaments in the core, which he concluded U.S. Gypsum had added to make the board more fire-resistant.

Georgia-Pacific called Robert Bruce to offer opinions as an expert witness on the subject of gypsum manufacturing. He testified to his opinions that Weatherock infringed claims of the patents in issue, such as, for example, claims 1 of the '569 and claim 1 of the '989 patent. They read:

Claim 1 of the '569 patent.

1. Gypsum board comprising a set gypsum core sandwiched, between two sets of porous glass mat, each of which has an inner and outer surface, said mat comprising randomly distributed glass fibers bonded by an adhesive material, the inner surface of each of said mats adhered to said gypsum core by a portion of the set gypsum comprising said core, the outer surface of one of said mats having portions thereof coated with set gypsum comprising portions of the set gypsum of said core, and the outer surface of the other of said mats being substantially free of set gypsum.

Claim 1 of the '989 patent.

1. A gypsum board comprising a set gypsum-containing core sandwiched between two

> sheets of porous glass mat, each of said mat consisting of randomly distributed glass fibers bonded by an adhesive material, said mats adhered to said set gypsum core by a portion of said set gypsum, at least a first of said mats having an outer surface which is substantially free of set gypsum.

Bruce based his opinions in part on his conclusions that: 1) the gypsum coating on the bottom of the Weatherock board covered only portions of the board; 2) the core of the Weatherock board was sandwiched between two glass mats; and 3) the facing of a gypsum board is a surface reinforcing material and therefor the Weatherock board with fiber glass-mat covered with gypsum, is a glass-mat faced board.

U.S. Gypsum called a number of witnesses to testify, including Dr. Richard A. Dr. Kuntze. Dr. Kuntze offered opinions as an expert witness in the field of gypsum board design, manufacture and use. He testified that the words glass-mat faced as used in the exterior insulation and finishing systems (EIFS) industry mean glass-mat on the face, or outer surface of the board (and nothing on top of the glass). Consequently, as Weatherock had gypsum on one outer surface of the board, that side was not glass-mat faced.

Dr. Kuntze reviewed prior art in the field, including the Morrone Canadian Patent No. 993779, U.S. Patent 3,993,822 to Knauf German utility model number 7806114 to Rigips Baustoffwerke, and the Pilgrim Patent, U.S. patent 4,378,405. He offered his opinion that the prior art described the same kind of invention that is contained in the board

claims of the patent. Rigips describes a board with gypsum free surfaces. Morrone and Pilgrim described a board using randomly-oriented fiberglass mat. Pilgrim described adding fiberglass to increase fire resistance of the core of the board.

In instructing the jury, the court construed the disputed terms of the claims as follows. The word "portions" should be read with its ordinary meaning, "a part of a whole." The word "sandwiched" should be read with its ordinary meaning, "between two things and not through and outside one of those two things." To those skilled in the art, the words "glass mat-faced" mean "glass mat surface reinforcing material."

In closing arguments, counsel for Georgia-Pacific conceded that with the court's claim construction Georgia-Pacific would not be able to establish the bottom surface of Weatherock was only covered with portions of gypsum, thus conceding a failure to prove infringement of claim 1 of the '569 patent and claim 6 of the '496 patent.

Counsel argued Georgia-Pacific had establish Weatherock infringed the balance of the asserted claims, as Weatherock was a "glass mat-faced" gypsum board, in that it had a glass mat surface reinforcing material. Counsel argued Weatherock met the "sandwiched" limitation, in that the gypsum core was sandwiched between the two mats, and what was through and outside the bottom mat was not the core gypsum, but the densified layer of gypsum. Counsel also argued Georgia-Pacific had established Weatherock had sufficient fibers in the core to create a fire-resistant additive.

In responding to U.S. Gypsum's evidence as to obviousness, counsel argued that Rigips taught away from

the invention, in that the text of the patent suggested the invention solved a problem that would otherwise arise from using fiberglass, that Morrone and Pilgrim had gypsum on the outside of both mats, and that Knauf was made from a composite mat, a woven fabric.

Counsel reviewed other evidence relating to secondary considerations as to obviousness and other evidence relating to Georgia-Pacific's claim for $650,000 as damages for lost profits.

In his closing argument, counsel for U.S. Gypsum argued Georgia-Pacific had failed to prove infringement and failed to rebut U.S. Gypsum's evidence on obviousness.

The jury's verdict is attached. It shows the jury found Georgia-Pacific had met its burden of showing U.S. Gypsum infringed the assert claims of the patents, that Georgia-Pacific had failed to meet its burden of proof to show no infringement under the reverse doctrine of equivalents, or invalidity due to obviousness, double-type patenting, a lack of enablement. The jury found, Georgia-Pacific had proved damages of $325,000.

U.S. Gypsum has moved for judgment as a matter of law or in the alternative for a new trial. Its briefing includes three arguments. First, it argues the court improperly precluded it from presenting certain defenses. Second, it contends them was insufficient evidence to support the jury's infringement findings. Third, it contends the claims in issue are invalid as a matter of law.

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II. *DISCUSSION*

In deciding whether to grant judgment as a matter of law on a particular issue after a jury has returned a verdict, the court must determine whether substantial evidence exists in the record to support the jury's verdict when the correct legal standard is applied. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 975 (Fed. Cir. 1995), *aff'd*, 116 S. Ct. 1384 (1996). Substantial evidence is the quantum of evidence that reasonable jurors would accept as adequate to support the finding under review. *The Perkin-Elmer Corp. v. Computervision Corp.*, 732 F.2d 888, 893 (Fed. Cir.), *cert. denied*, 469 U.S. 857 (1994). The court must consider all evidence and draw all reasonable inferences from the evidence in the light most favorable to the nonmovant. *Id.* In addition, the court may not determine the credibility of the witnesses, and it may not "substitute its choice for that of the jury as between conflicting elements of the evidence." *Id.*

In deciding whether to grant a new trial, the court may consider, among other things, whether the verdict is against the weight of the evidence, *Wagner v. Fair Acres Geriatric Center*, 49 F.3d 1002, 1017 (3d Cir. 1995), whether the verdict turned on erroneously admitted evidence, *Blanche Road Corporation v. Bensalem Township*, 57 F.3d 253 (3d Cir.), *cert. denied*, 116 S. Ct. 303 (1995), or whether the court improperly instructed the jury. *Cooper Distributing Co. v. Amana Refrigeration*, 63 F.3d 262 (3d Cir. 1995); *see generally Lind v. Schenley Industries, Inc.*, 278 F.2d 79, 90 (3d Cir.), *cert. denied*, 364 U.S. 835 (1960). In determining whether a verdict is against the weight of the evidence, the

court should not substitute its view of the facts for that of the jurors. *Wagner*, 49 F.3d at 1017. Nevertheless, the court may grant a new trial even when judgment as a matter of law is inappropriate. *Id.* Ultimately, the grant of a new trial is within the sound discretion of the district court. *Id.*

1. *Did the court improperly preclude U.S. Gypsum from presenting certain defenses*?

U.S. Gypsum contends the court improperly precluded it from seeking relief based on claims that the board and additive claims are anticipated by a single prior art reference, that the asserted claims fail to distinctly point out and claim what Lehnert and Randall regard as their invention, and that Georgia-Pacific failed to name the proper inventors in the patents in suit. It is not clear why U.S. Gypsum is calling on this court to revisit this issue. Early on in the case, the court put counsel on notice of its view that, discovery relating to contentions and the basis for contentions is an effective tool that can assist the court and counsel in formulating and simplifying issues consistent with Federal Rule of Civil Procedure 16. Early on in the case, the court set deadlines for counsel to respond to these discovery questions and warned counsel of the consequences that would follow from a failure to respond, or to identify why counsel could not respond at that time. Georgia-Pacific heard that message and used that tool. When Georgia-Pacific concluded U.S. Gypsum had not heard that message, it asked the court for assistance well before the close of discovery. As noted above, the court's decision to preclude U.S. Gypsum from making certain arguments and offering certain evidence came after a number of conferences, and after U.S. Gypsum had

numerous opportunities to respond to Georgia-Pacific's discovery requests or to show why it should be relieved from having to respond. This court sees no reason to revisit the issue.

2. *Is there sufficient evidence in the record to support the jury's verdicts as to infringement?*

U.S. Gypsum argues that Georgia-Pacific's evidence as to infringement was deficient in two respects. First, U.S. Gypsum argues there was insufficient evidence from which the jury could conclude Weatherock contained fire resistant additives so as to infringe that element of claims 1 and 2 of the '900 patent, and claim 8 of the '989 patent. The court agrees. Even if we accept Georgia-Pacific's evidence that it found some glass fibers in Weatherock's gypsum core — which was disputed by U.S. Gypsum — that testimony is not sufficient to show there were enough fibers to give the boards a fire resistant property. For example, in prosecuting the '900 patent Georgia-Pacific reported that the amount of glass fibers to be included in the core to provide the fire resistant properties should be at least 0.03 % of the weight of the slurry. Georgia-Pacific has not offered evidence to show that the fibers they contend they found in Weatherock are sufficient to meet this minimum weight. As the verdict as to these claims is against the weight of the evidence, the court will enter in order granting U.S. Gypsum's motion for a new trial as to Georgia-Pacific's claims it is infringing these claims.

Second, U.S. Gypsum contends there is insufficient evidence to support a finding of infringement as to claims 6

and 11 of the '496 patent, and claims 1, 6, 8, 9, 10, 12, and 15 of the '989 patent, as they claim a gypsum board or a system with a gypsum board with the core gypsum "sandwiched" between two mats. U.S. Gypsum contends that as Weatherock has gypsum penetrating through and on the outside of one of the mats, its core is not "sandwiched" between the mats and thus it does not infringe.

Georgia-Pacific had initially argued Weatherock met this "sandwiched" limitation by having the gypsum slurry between the two mats and that U.S. Gypsum had simply added a feature by also forcing the gypsum through one mat and onto its outer surface. After the court construed sandwich to read "between two things and not through and outside of one of those two things," Georgia-Pacific offered a new argument: Weatherock still met this limitation as its core slurry was sandwiched between the two mats, what penetrated through the mat and to the outside on the Weatherock was not the core gypsum slurry, but the densified layer of gypsum U.S. Gypsum added and pressed through the mat before it added the gypsum slurry. Needless to say, this new argument, this new view of the facts (and perhaps new construction of the claims) caused some stir in the courtroom as it came during the rebuttal portion of plaintiffs closing argument.

A review of the prosecution history of the patents as set out above shows Lehnert and Randall started out claiming they had developed a method of manufacturing a gypsum board with fiber glass mats on a conventional wallboard machine. They accomplished this by controlling the viscosity of the slurry as it was fed onto a moving sheet of glass fiber

mat. With a porous mat, they reported the slurry would penetrate the mat to form a thin film on portions of the outer surface of the mat. The words they used in claiming their invention, included a "gypsum slurry," which was to be poured between "two glass mats." In that context, they described the slurry as sandwiched between the mats and the term "sandwich" can be read with its ordinary meaning, that is to place between two things (but not on the outside of either). Lehnert and Randall further described the mats in their claims as "porous," and noted that for certain claims at least one of them would allow the core gypsum to penetrate through the porous mat. In that context, by claiming "a board comprising a set gypsum core sandwiched between two sheets of porous glass mat . . . the outer surface of one of said mats having portions thereof coated with set gypsum," they added words to further describe the sandwich as having a core of slurry that penetrated through a porous mat and formed a thin film on portions of the outer surface. For other claims, they claimed a sandwich where at least one mat had an outer surface that was substantially free of gypsum (implying that the other need not). In others, they claimed a sandwich were both surfaces were substantially free of gypsum. And in others, they claimed a board of core gypsum sandwiched between two mats, without claiming any unique or particular surface on the outside of the mats.

As counsel maneuvered through the Patent and Trademark office and around and past the prior art, they refined and rewrote the claims frequently to limit the extent to which they claimed the core gypsum would penetrate through the glass mats.

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By construing the word sandwiched, the court did not constrain Georgia-Pacific from arguing (or the jury from finding) that a claim may describe a board with a gypsum core sandwiched between two porous glass mats and (where the additional matter is claimed) through the porous mat and on the outer surface of one mat. See for example, claim 1 of the '569 patent, which reads:

> 1. Gypsum board comprising a set gypsum core sandwiched between two sets of porous glass mat, each of which has an inner and outer surface, said mat comprising randomly distributed glass fibers bonded by an adhesive material, the inner surface of each of said mats adhered to said gypsum core by a portion of the set gypsum comprising said core, the outer surface of one of said mats having portions thereof coated with set gypsum comprising portions of the set gypsum of said core, and the outer surface of the other of said mats being substantially free of set gypsum.

The issue raised by the jury's finding of infringement, is whether the claims asserted by Georgia-Pacific cover Weatherock, a board with slurry that is through, and on the outside of one of the mats. Claim 6 of the '496 patent does, but as noted above, U.S. Gypsum does not infringe that claim as the claim includes the limitation that the gypsum on the outside cover only a portion of the mat. Georgia-Pacific now concedes more than portions of one side of Weatherock are covered with gypsum.

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Claim 11 of the '496 patent does not cover a board with slurry that is through and on the outside of the mat, as it claims in part a board with a gypsum core sandwiched between two mats, but does not claim a board where the core penetrates through and onto the outside of the mat. It appears, therefore, there was no substantial evidence to support the jury's verdict U.S. Gypsum infringes this claim.

Claim 1, 6, 9, 10, 12, 15 and 17 of the '989 patent do claim a board or a system with a board where the outer surface of one mat is substantially free of gypsum (and by implication the other is not). As Weatherock has the other elements of these claims, it infringes each of these claims of the patent.

In summary, the court will affirm the jury's verdict as to infringement of claims 1, 2 and 5 of the '496 patent and of claims 1, 6, 9, 10, 12, 15 and 17 of the '989 patent. The court will grant defendants' motion for a new trial on Georgia-Pacific's claim U.S. Gypsum infringes and induces others to infringe claim 11 of the '496 patent, claim 8 of the '989 patent, and its motion for a new trial on claims 1 and 2 of the '900 patent.

3. *Is there sufficient evidence to support the jury's verdict that U.S. Gypsum failed to show by clear and convincing evidence that the claims in issue are invalid due to obviousness?*

U.S. Gypsum contends it is entitled to a judgment as a matter of law that all of the asserted claims are obvious. An inventor cannot obtain a patent "if the differences between

the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which" the invention pertains. 35 U.S.C. § 103. Facts to consider when determining whether the claims of a patent were obvious include: 1) the scope and content of the prior art; 2) the level of ordinary skill in the art; 3) the differences between the subject matter claimed and the prior art; and 4) other objective indicia of nonobviousness. *See Graham v. John Deere Co.*, 393 U.S. 1, 17-18 (1966). U.S. Gypsum has the burden of proving these facts by clear and convincing evidence. *Greenwood v. Hattori Seiko Co.*, 900 F.2d 238, 241 (Fed. Cir. 1990). The ultimate determination of obviousness, however, is a question of law. *Graham*, 383 U.S. at 17; *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1547 (Fed. Cir. 1983).

As to the systems claims, U.S. Gypsum contends it established at trial that system claims are old, that a glass mat faced board was known in the prior art, that the EIFS industry recognized that exterior insulation systems could be put up over virtually any sound substrate and the fiberglass reinforced gypsum board was a sound substrate. It also argues that it has shown that paper-reinforced gypsum boards had been used as a substrate and that it would have been obvious to replace a paper-reinforced board with a fiberglass-reinforced board (because paper had been identified as the weak link in the systems using paper-faced gypsum sheathing). It also points to evidence offered at the trial showing that years before Georgia-Pacific applied for the patents, U.S. Gypsum researches had considered fiberglass-reinforced gypsum boards as being desirable for use in exterior insulation systems.

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U.S. Gypsum argues the board claims would have been obvious in light of the prior art, including Morrone and Rigips. It contends it showed Morrone contained each of the following elements: (1) gypsum board sandwiched between two sheets of porous glass mat; (2) each mat having an inner and outer surface; (3) the mats comprising randomly distributed glass fibers bonded by an adhesive material; (4) the inner surface of each mat being adhered to the core by a portion of the core gypsum; and (5) one of the mats having a surface free of gypsum, and the other having portions which are coated with gypsum. It contends Rigips discloses a fiberglass mater-reinforced board with the outer surfaces of both glass-mats gypsum free.

Georgia-Pacific has responded by arguing there is substantial evidence the jury could have looked to in rejecting U.S. Gypsum's arguments. As to the system claims, Georgia-Pacific relies on the testimony of Hopkins, Randall and Lehnert and their identification of the unique problems in developing a board for the EIFS industry, including problems relating to developing a board that would be exposed to the weather. Georgia-Pacific notes that each of the references cited by U.S. Gypsum discloses interior boards. None discloses or suggests an exterior system. It also relies on Hopkins' testimony that while the EIFS industry had been looking for a better substrate for years, it was not until Randall and Lehnert conducted their experiments and developed their fiberglass mat that the need was met.

Georgia-Pacific is correct that this evidence does suggest the system claims would not have been obvious to one of ordinary skill in the art. It is sufficient to support the jury's

finding U.S. Gypsum failed to meet its burden of coming forward with clear and convincing evidence that the system claim were invalid due to obviousness.

As to the board claims, Georgia-Pacific responds that it offered evidence at the trial (evidence the jury was entitled to rely on) to show that Morrone does not have a gypsum free surface. That evidence included U.S. Gypsum's pre-trial admissions that Morrone did not have a gypsum-free surface. While Dr. Kuntze testified at trial that he believed it did, he appears to have conceded on cross examination that the drawings in Morrone and the text to the drawings appear to refer to gypsum on the outside of both sheets. Georgia-Pacific argues it is the gypsum free surface that makes its board claims patentable over the prior art, as it is the gypsum free surface that allows a manufacturer to make the fiber glass-mat faced boards on a conventional gypsum board line. Georgia-Pacific argues the jury was entitled to credit its evidence on this point.

During the oral argument following the post trial briefing counsel for U.S. Gypsum identified the following language from claim 1 of the Morrone patent as showing the patent disclosed both a gypsum-free surface and a surface coated with gypsum.

> . . . thin glass fiber sheet adhered to at least one major side of the core, a portion of the fibers comprising said sheet being exposed on the exterior surface . . . a substantial number of interstices between adjacent fiber at the exterior surface of the sheet.

It appears this sentence speaks to whether the fibers are exposed, rather than to what portion of the fibers on the outer surface may otherwise be covered by gypsum. In any event, reading this sentence does not clearly show Morrone claimed a gypsum free surface. Perhaps the best evidence that it does not show that, comes from U.S. Gypsum's pre-trial admissions that it did not read Morrone as disclosing a gypsum free surface.

Georgia-Pacific also argues the jury was entitled to credit its evidence and arguments as to Rigips, including that it taught away from manufacturing a board with simple, clear, resin-bonded glass fiber maters (as used by Morrone and Georgia-Pacific).

Georgia-Pacific also relies on substantial evidence as to secondary considerations relevant to obviousness. It cites testimony by Hopkins, Kuntz and others that Georgia-Pacific's Dens Glass products met a long felt need in the industry, its proof as to the commercial success of its Dens Glass products, including evidence that they had gained a substantial share of the market, their sales were growing at relatively high rates (38%, 28% and 50% per year) and that they were generating substantial profits for Georgia-Pacific (1994 Georgia-Pacific made over $10 million worth of incremental profits on its Dens Glass products).

A review of the record confirms there is substantial evidence to support the jury's conclusion U.S. Gypsum failed to show by clear and convincing evidence that the claims in issue are invalid due to obviousness.

Appendix B

U.S. Gypsum has included other arguments in its post trial briefing. Certain of them are more in the nature of reargument of pretrial and trial decisions. To the extent they are not addressed in this opinion, they are denied for the reasons previously identified by the court. As to other arguments not addressed in this opinion, the court has reviewed them and finds them to be without merit.

Appendix B

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

Civil Action No. 94-489-RRM

GEORGIA-PACIFIC CORPORATION,

Plaintiff,

v.

UNITED STATES GYPSUM COMPANY and
L & W SUPPLY CORPORATION,

Defendants.

ORDER OF INJUNCTION

In accordance with the jury's verdict in this action finding that defendants United States Gypsum Company and L & W Supply Corporation have infringed United States Patents Nos. 4,647,496 and 5,371,989, and that the asserted claims of those patents are not invalid,

IT IS HEREBY ORDERED that:

1. Defendants United States Gypsum Company and L & W Supply Corporation, their officers, agents, employees and attorneys, and those in active concert or participation with them, are enjoined from infringing (a) claims 1, 2, and 5 of United States Patent No. 4,647,496 until March 3, 2004, (b) claims 1, 6, 9, 10, 12, 15, and 17 of United States Patent

No. 5,371,989 until December 13, 2011, by making, using or selling their Weatherock product, their Weatherock EIFS system, or any other infringing product or system;

2. Defendants United States Gypsum Company and L & W Supply Corporation, their officers, agent, employees and attorneys, and those in active concert or participation with them are enjoined from inducing infringement of or contributing to the infringement of (a) claims 1, 2, and 5 of United States Patent No. 4,647,496 until March 3, 2004, and (b) claims 9, 10, 12 and 15 of United States Patent No. 5,371,989 until December 13, 2011, by selling their Weatherock product for use in their Weatherock EIFS system, or any other infringing system; and

3. Defendants United States Gypsum Company and L & W Supply Corporation, their officers, agents, employees and attorneys, and those in active concert or participation with them, are enjoined from otherwise making using or selling any product or system which infringes claims 1, 2, and 5 of United States Patent No. 4,647,496, or claims 1, 6, 9, 10, 12, 15 or 17 of United States Patent No. 5,371,989, or inducing infringement of or contributing to the infringement of claims 1, 2, or 5 of United States Patent No. 4,647,496 or claims 9, 10, 12 or 15 of United States Patent No. 5,371,989, until the expiration of those patents.

s/ [illegible]
UNITED STATES DISTRICT JUDGE

Dated: December 27, 1996

Appendix B

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

Civil Action No. 94-489-RRM

GEORGIA-PACIFIC CORPORATION,

Plaintiff,

v.

UNITED STATES GYPSUM COMPANY and
L & W SUPPLY CORPORATION,

Defendants.

ORDER GRANTING IN PART AND DENYING IN PART DEFENDANTS MOTION FOR JUDGMENT AS A MATTER OF LAW

For the reasons set out in the court's December 27, 1996 Memorandum Opinion,

IT IS HEREBY ORDERED as follows:

1) Defendants' motions for judgment as a matter of law (D.I. 268 and 294) are denied.

2) Defendants' motion in the alternative for a new trial is granted in part and defendants are entitled to a new trial on plaintiff's claims defendants infringe claims 1 and 2 of the '900 patent and plaintiff's claims defendants infringe and

induced others to infringe claim 8 of the '989 patent and claim 11 of the '496 patent.

s/ [illegible]
UNITED STATES DISTRICT JUDGE

Dated: December 27, 1996

Appendix B

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

Civil Action No. 94-489-RRM

GEORGIA-PACIFIC CORPORATION,

Plaintiff,

v.

UNITED STATES GYPSUM COMPANY and
L & W SUPPLY CORPORATION,

Defendants.

ORDER DENYING GEORGIA-PACIFIC'S REQUEST FOR A FINDING OF WILLFUL INFRINGEMENT

By an opinion issued this date, the court has denied in defendants' motion for judgment as a matter of law and denied in part defendants' motion for a new trial. Georgia-Pacific has requested that the court find defendants' infringement willful. In support of its request, Georgia-Pacific has identified facts which suggest U.S. Gypsum followed Georgia-Pacific into the market with Weathercock and that at the time it introduced Weathercock it copied or borrowed certain features Dens Glass and Dens Glass gold had incorporated and that were protected by claims of the patents in suit. U.S. Gypsum also apparently sold Weathercock for use in systems with the understanding that using the boards in certain systems may infringed claims of

the Georgia-Pacific patents. However, U.S. Gypsum has offered evidence that tends to show it was aware of Georgia-Pacific's patents, that it sought to develop a design for manufacturing a board that would avoid infringement of certain claims and as it demonstrated at trial it had a good faith basis for believing certain of the claims could be shown to be invalid or unenforceable. Further, U.S. Gypsum offered evidence to show it consulted counsel and obtained an opinion with regard to certain of Georgia-Pacific's claims. While the opinion of counsel might have been more complete and might have better predicted the issues that ultimately went to trial, it is the type of opinion on which U.S. Gypsum should have felt comfortable in relying on. The court finds U.S. Gypsum did rely on that opinion and that it did not proceed with a wrongful intent or in a reckless disregard of Georgia-Pacific's rights. The court will, therefore, deny Georgia-Pacific's request for a finding U.S. Gypsum willfully infringed the patents.

For these reasons

IT IS HEREBY ORDERED Georgia-Pacific's request that the court find defendants infringement of plaintiff's patents willful (D.I. 299) is denied.

s/ [illegible]
UNITED STATES DISTRICT JUDGE

Dated: December 27, 1996

APPENDIX C — ORDER OF THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT GRANTING PETITION FOR REHEARING TO MAKE ATTACHED ALTERATION TO OPINION AND DECLINING SUGGESTION FOR REHEARING DATED AND FILED FEBRUARY 23, 2000

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

ORDER

A combined petition for rehearing and suggestion for rehearing en banc having been filed by the Appellants, and a response thereto having been invited by the court and filed by the Cross-appellant, and the petition for rehearing having been referred to the panel that heard the appeal, and thereafter the suggestion for rehearing en banc and response having been referred to the circuit judges who are in regular active service,

UPON CONSIDERATION THEREOF, it is

ORDERED that the petition for rehearing be, and the same hereby is, GRANTED to make the attached alteration to the opinion, and it is further

ORDERED that the suggestion for rehearing en banc be, and the same hereby is, DECLINED.

The mandate of the court will issue on March 1, 2000.

Appendix C

FOR THE COURT,

s/ Jan Horbaly (AV)
Jan Horbaly
Clerk

Dated: February 23, 2000

GEORGIA-PACIFIC CORP V US GYPSUM CO, 97-1238, -1244
(DCT-94-489)

United States Gypsum Company's petition for rehearing is granted only to make the following deletion from the opinion issued on November 1, 1999:

> Page 14, lines 21-23: Delete the sentence "Moreover, the boards claimed by Georgia Pacific in its EISystem were not "old boards," but instead were themselves patented products."

APPENDIX D — ORDER OF THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT DENYING PETITION FOR REHEARING DATED AND FILED FEBRUARY 23, 2000

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

97-1238, -1244

GEORGIA-PACIFIC CORPORATION,

Plaintiff/Cross-Appellant,

v.

UNITED STATES GYPSUM COMPANY
and L&W SUPPLY CORPORATION,

Defendants-Appellants.

ORDER

A combined petition for rehearing and petition for rehearing en banc having been filed by the CROSS-APPELLANT, and a response thereto having been invited by the court and filed by the APPELLANTS, and the petition for rehearing having been referred to the panel that heard the appeal, and thereafter the petition for rehearing en banc and response having been referred to the circuit judges who are in regular active service,

UPON CONSIDERATION THEREOF, it is

ORDERED that the petition for rehearing be, and the same hereby is, DENIED and it is further

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ORDERED that the petition for rehearing en banc be, and the same hereby is, DENIED.

The mandate of the court will issue on March 1, 2000.

FOR THE COURT,

s/ Jan Horbaly (AV)
Jan Horbaly
Clerk

Dated: February 23, 2000

GEORGIA-PACIFIC CORP V US GYPSUM CO, 97-1238, -1244
(DCT-94-489)